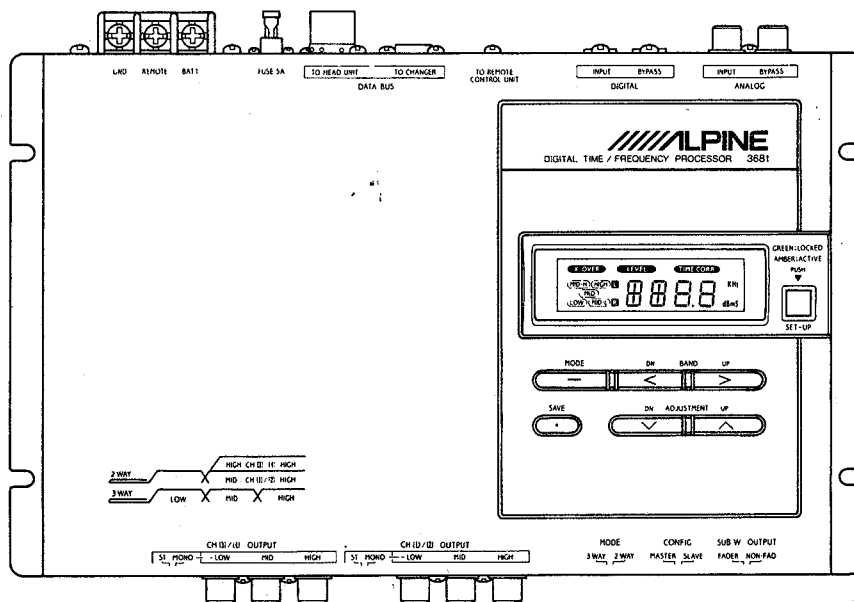


ALPINE[®] SERVICE MANUAL

Digital Time/Frequency Processor



3681

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Specifications

Frequency Response (0 $\pm$ 1dB)	50Hz~10kHz
Current Drain	1.6A
Signal to Noise Ratio	3Way LOW (1.2.3.4ch): 85dB 3Way MID/HIGH (1.2.3.4ch): 80dB 2Way LOW (1.2.3.4ch): 85dB 2Way MID (1.2ch)/HIGH (3.4ch): 80dB
Distortion (20Hz to 20kHz)	0.3%
Channel Separation	40dB
Input Sensitivity	750mV $\pm$ 2dB
Input Impedance	10kohm
Output Impedance	1kohm
Crossover Frequency Range (at -3 $\pm$ 2dB)	3Way LOW (1.2.3.4ch): 32Hz~400Hz 3Way MID (1.2.3.4ch): 32Hz~400Hz, 200Hz~10kHz 3Way HIGH (1.2.3.4ch): 200Hz~10kHz 2Way: 32Hz~400Hz
Power Supply	DC 14.4V (11~16V)
Semiconductors	57 IC's, 45 Transistors, 37 Diodes, 7 Zener Diodes
Dimensions (W $\times$ H $\times$ D)	240 $\times$ 50 $\times$ 160(mm)
Weight	1.5kg

Note: Due to continuing product improvement, specifications and designs are subject to change without notice.

IN CASE OF DIFFICULTY

PROBLEM	POSSIBLE CAUSE & REMEDY
Remote-on light does not come on.	- Head unit is not on: Turn the head unit on. - Ground wire is disconnected or defective: Check for continuity with an ohmmeter between 3681's Ground terminal and a known chassis ground point. - Battery wire is disconnected or defective: Check for approximately + 12 volts between 3681's Battery and Ground terminals. - Blown Fuse: Check 3681's 5A Fuse, located near the Battery terminal. If it is blown, replace it with an identical one. If the new fuse blows immediately, then check all the wiring connections. If no fault is found, consult your Alpine dealer. - Remote-On wire between the head unit and the 3681 is disconnected or defective: Check for + 12 volts between 3681's Remote-on connector and ground connector with the head unit on.
Remote-On light is on, but no sound is heard from some or all of the speakers.	- Incorrect Switch Settings: Make sure that all Mode Selector switches are in their correct positions for your system configuration (see WIRING AND SET-UP). - Defective or disconnected audio cables: check for continuity and replace if necessary. - Incorrect Output Level Adjustment: Verify that the 3681's output level controls are not turned very low. If they are, sound output level may be very low and may give the impression that the system (or part of the system) is dead. - Defective 3681: Bypass the 3681 by connecting its input and the dead output terminal's cables together (with a pair of Alpine 4401 female-to-female adaptors). If the system becomes functional, the 3681 may be defective. Consult your Alpine dealer. - Defective Head Unit, or other audio component: Check each component for wiring and operation.
Alternator whine through the audio system with the engine running.	- Ground loops: Connect grounds of all audio components to the same point on the vehicle chassis. Verify that this point is a true ground by checking for continuity with an ohmmeter between the ground point and the battery's (-) terminal, and follow the grounding recommendations on page 11. - Shorted Signal and Chassis Grounds: Check for shorts between speaker leads and chassis ground, or input signal ground and chassis ground. - The other audio components may have insufficient filtering: They may need noise suppressors on their battery or ignition connections. - Check the vehicle's battery and voltage regulator.

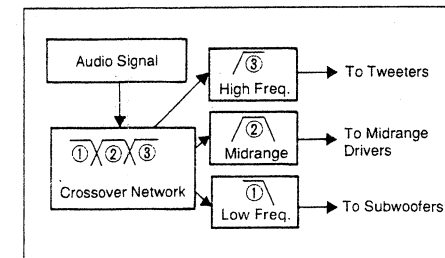
FEATURES

- DIGITAL TIME/FREQUENCY PROCESSOR**
 A very flexible and precise DSP CHIP creates a digitally adjustable DIVIDING NETWORK (crossover/output level/time correction).
- DIGITAL SIGNAL PROCESSOR**
 By using a DSP CHIP with the industry's highest processing speed (34 million instructions per second), precisely detailed high-quality sound is obtained.
- 8fs 18-bit HYBRID I-DAC**
 Each band is provided with 8 times oversampling 18-bit HYBRID I DACs, which combine 1-bit and multi-bit technology for high quality analog conversion.
- MULTIPLE INPUTS: 1 OPTICAL DIGITAL INPUT (44.1 kHz) AND 1 ANALOG INPUT.**
- FLEXIBLE CONFIGURATIONS INCLUDE 2-WAY, 3-WAY, SATELLITE/SUBWOOFER, SATELLITE/MIDBASS/SUBWOOFER, ETC.**
- MASTER/SLAVE SWITCH ALLOWS DAISY-CHAINING FOR EVEN MORE FLEXIBILITY**
- VARIABLE CROSSOVER FREQUENCIES, OUTPUT LEVELS AND TIME CORRECTION (DELAY)**
- NON-FADING OUTPUT**
 Low output switches to subwoofer output (non-fading, st/mono).
- BUILT-IN AUDIO CONTROL CIRCUITS (VOLUME, TREBLE/BASS, FADER AND BALANCE)**
 Use of data bus technology enables control from appropriate controllers.
- REMOTE POWER ON/OFF**
 The 3681 turns on and off along with the head unit.
- DC-TO-DC SWITCHING MODE POWER SUPPLY FOR NOISE ISOLATION**
- ISOLATED DIGITAL AND ANALOG CIRCUITS PREVENT INTERFERENCE**
- GOLD-PLATED RCA CONNECTORS AND SCREW-DOWN POWER CONNECTIONS**
- KEYS TO CONTROL PARAMETERS, WITH LCD DISPLAY**

THEORY OF OPERATION

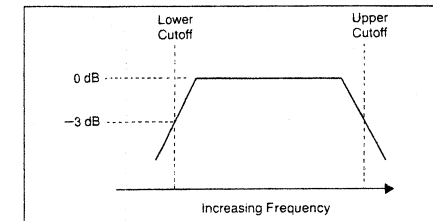
CROSSOVER NETWORKS:

A crossover network divides the audio spectrum into different segments. This segmentation is based on the frequency of the signal. The crossover network actually employs filters that pass a certain range of frequencies and block the rest. This way, the signal can be separated into a set of signals with different frequency response ranges.



The Lower Cutoff (or High-Pass Crossover point) of the network is the lowest frequency at which the level is no more than 3 dB below the reference level established in the pass-band.

The Upper Cutoff (or Low-Pass Crossover point) of the network is the highest frequency at which the level is more than 3 dB below the reference level established in the pass-band.

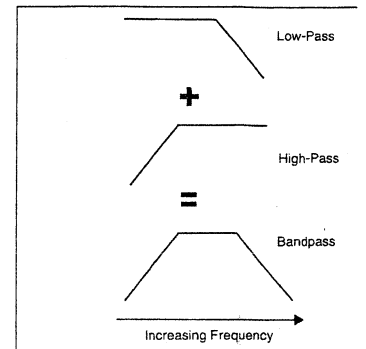


A crossover network section does not necessarily have both the lower and higher crossover frequencies:

1. LOW-PASS CROSSOVERS: Filters with only an upper cutoff frequency. Subwoofer outputs are generally low-pass.

2. HIGH-PASS CROSSOVERS: Have a lower cutoff frequency only. Tweeter (High) outputs are generally high-pass.

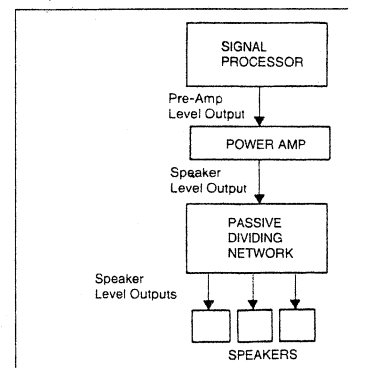
3. BANDPASS CROSSOVERS: Have both lower and upper crossover points. These filters are implemented by adding a Low-pass and a High-pass filter together in series. Midrange crossovers are generally bandpass.



There are two methods of implementing a crossover network:

PASSIVE NETWORKS:

Consist of inductors, capacitors, resistor combination of these components. The term refers to the fact that there are no active elements (such as transistors or op-amps) in them. Passive networks are inserted between the amplifier and the speakers. They act on the speaker-level outputs of the amp. Passive networks are used in most automotive speakers and home speaker systems.



FEATURES

TIME/FREQUENCY PROCESSOR

Flexible and precise DSP CHIP creates a adjustable DIVIDING NETWORK (crossover level/time correction).

SIGNAL PROCESSOR

A DSP CHIP with the industry's highest sampling speed (34 million instructions per second) precisely detailed high-quality sound is

HYBRID I-DAC

Is provided with 8 times oversampling HYBRID I DACs, which combine 1-bit technology for high quality analog output.

INPUTS: 1 OPTICAL DIGITAL INPUT (kHz) AND 1 ANALOG INPUT.

CONFIGURATIONS INCLUDE 2-WAY, SATELLITE/SUBWOOFER, SATELLITE/SUBWOOFER, ETC.

SLAVE SWITCH ALLOWS DAISY-CONNECTION FOR EVEN MORE FLEXIBILITY

CROSSOVER FREQUENCIES, CUTOFF LEVELS AND TIME CORRECTION

NON-FADING OUTPUT

Low output switches to subwoofer output (non-fading, st/mono).

BUILT-IN AUDIO CONTROL CIRCUITS (VOLUME, TREBLE/BASS, FADER AND BALANCE)

Use of data bus technology enables control from appropriate controllers.

REMOTE POWER ON/OFF

The 3681 turns on and off along with the head unit.

DC-TO-DC SWITCHING MODE POWER SUPPLY FOR NOISE ISOLATION

ISOLATED DIGITAL AND ANALOG CIRCUITS PREVENT INTERFERENCE

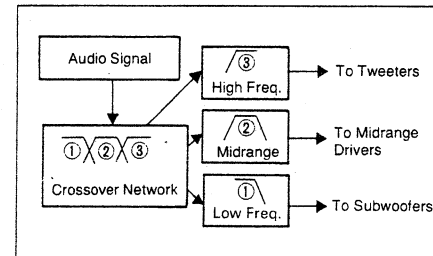
GOLD-PLATED RCA CONNECTORS AND SCREW-DOWN POWER CONNECTIONS

KEYS TO CONTROL PARAMETERS, WITH LCD DISPLAY

THEORY OF OPERATION

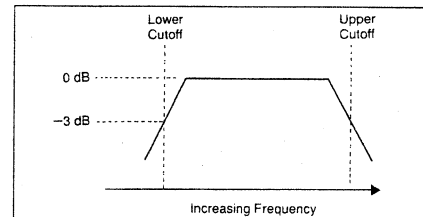
CROSSOVER NETWORKS:

A crossover network divides the audio spectrum into different segments. This segmentation is based on the frequency of the signal. The crossover network actually employs filters that pass a certain range of frequencies and block the rest. This way, the signal can be separated into a set of signals with different frequency response ranges.



The Lower Cutoff (or High-Pass Crossover point) of the network is the lowest frequency at which the level is no more than 3 dB below the reference level established in the pass-band.

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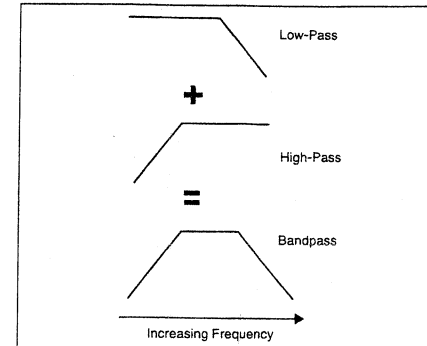


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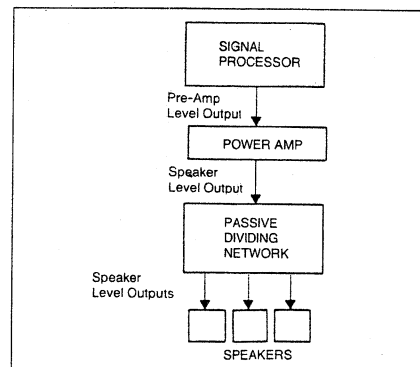
3. BANDPASS CROSSOVERS: Have both lower and upper crossover points. These filters are made by adding a Low-pass and a High-pass crossover together in series. Midrange crossovers are generally bandpass.



There are two methods of implementing a crossover network:

PASSIVE NETWORKS:

Consist of inductors, capacitors, resistors or a combination of these components. The term "passive" refers to the fact that there are no active components (such as transistors or op-amps) in these systems. Passive networks are inserted between the amplifier and the speakers. They act on the amplified speaker-level outputs of the amp. Passive networks are used in most automotive 2 or 3 way speakers and home speaker systems.



THEORY OF OPERATION

Passive networks are very cost-efficient to build. They also allow the use of one amplifier to drive all the components of the speaker system. However, they have many disadvantages:

a. Inefficiency: A considerable amount of power produced by the amplifier is dissipated (wasted) through the passive crossover network before reaching the speakers.

b. Phase shift: Inductive and capacitive characteristics of the passive networks introduce phase-shift and distortion into the signal driving the speakers.

c. Intermodulation Distortion: As all audio frequencies pass through the same amplifier, sub-bass can intermodulate mid-bass and midrange frequencies and "muddy" the sound. Also high frequency square-wave components that result from clipping low frequencies, can quickly and easily damage the tweeters.

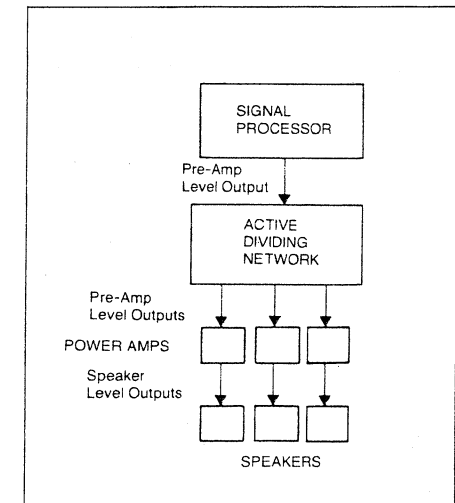
d. Unbalanced sound: Due to the fact that one amplifier is driving all the speaker components, the output level of each driver is related to its efficiency only. Low frequency drivers are generally less efficient than midranges or tweeters. This causes an imbalance in the output frequency response that can only be corrected by experimentation and the use of power-robbing multi-watt resistors.

e. Non-linear Response: Inductive and capacitive components react with the non-linear characteristics of a real-life speaker (which has its own inductance and capacitance). This results in unpredictable frequency response deviations in the total system response that can be very difficult to pinpoint and correct.

ACTIVE DIVIDING NETWORKS:

Consist of active components such as op-amps and transistors. These components accomplish the filtering and signal division before amplification, while the signal is still at its pre-amp level. An active dividing network is inserted before the amplifier(s), after all the pre-amp level signal processing is done. This allows running separate amplifiers for each component driver. Therefore, passive filters between the amp and the speaker components are no longer necessary. By using separate amplifiers, the drivers are completely isolated from each other:

a. The inefficiency problem of the passive networks is eliminated because there are no longer any additional components (such as inductors, capacitors, or resistors) between the amplifier and the speaker. This ensures that all the output of the amplifier is delivered to the speaker.



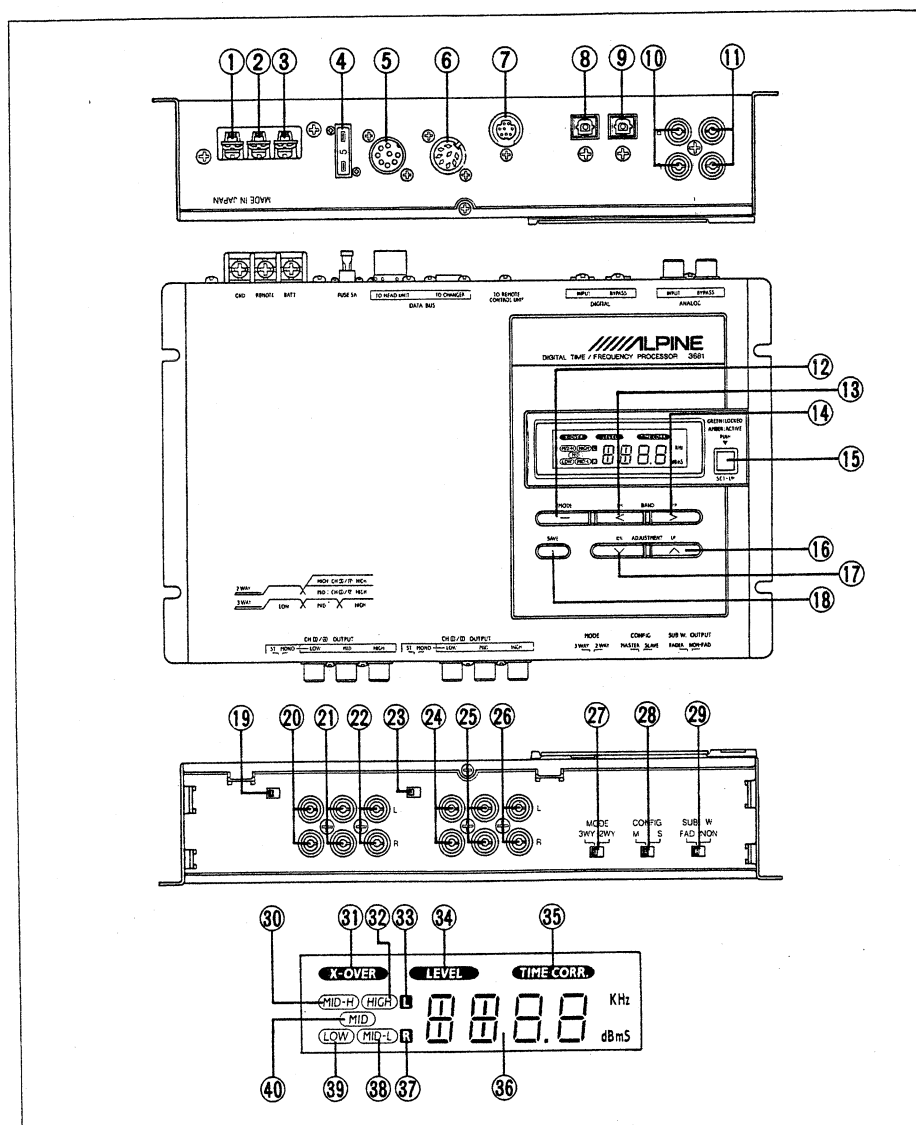
b. No inductors and only a few small capacitors are used in active dividing networks. Therefore, large phase shifts and their associated problems are eliminated.

c. Different components of the speaker system are driven by separate amplifiers. These amplifiers act as isolators and prevent any interaction and intermodulation between the different drivers. Tweeters will be safe from high frequency by-products of a clipping subwoofer.

d. Level imbalances between different speakers are overcome very easily by adjusting the output level control of each band. Because only the pre-amp input level to amplifier is changed, there is no loss in efficiency.

e. Advantages related specifically to the 3681 include near-zero phase shift due to the use of DSP implemented filters. This helps avoid acoustic interference. In addition, the 3681 allows adjustment of the time delay of each channel, making the acoustic alignment of each driver possible.

CONTROLS AND SWITCHES



CONTROLS AND SWITCHES

- ① Ground Lead Terminal
- ② Remote Turn-On Lead Terminal
- ③ Battery Lead Terminal
- ④ Fuse (5A)
- ⑤ Data Bus Connector (TO HEAD UNIT)

- ⑥ Data Bus Connector (TO CHANGER)
- ⑦ Remote Control Unit Connector
- ⑧ Digital Input Connector
- ⑨ Digital Bypass Connector
- ⑩ Analog Input RCA Connectors

- ⑪ Analog Bypass RCA Connectors
- ⑫ MODE Select Button
- ⑬ BAND Down Button
- ⑭ BAND UP Button
- ⑮ SET-UP Button

- ⑯ ADJUSTMENT UP Button
- ⑰ ADJUSTMENT Down Button
- ⑱ SAVE Button
- ⑲ ST/MONO Switch (CH 3/4)
- ⑳ Low Output RCA Connectors (CH 3/4)

- ㉑ Midrange Output RCA Connectors (CH 3/4)
- ㉒ High Output RCA Connectors (CH 3/4)
- ㉓ ST/MONO Switch (CH 1/2)
- ㉔ Low Output RCA Connectors (CH 1/2)
- ㉕ Midrange Output RCA Connectors (CH 1/2)

- ㉖ High Output RCA Connectors (CH 1/2)
- ㉗ Mode Switch
- ㉘ Configuration Switch
- ㉙ Subwoofer Output Switch
- ㉚ MID-H Indicator

- ㉛ X-OVER Indicator
- ㉜ HIGH Indicator
- ㉝ L Indicator
- ㉞ LEVEL Indicator
- ㉟ TIME CORR. Indicator

- ㊱ Digital Display
- ㊲ R Indicator
- ㊳ MID-L Indicator
- ㊴ LOW Indicator
- ㊵ MID Indicator

WIRING AND SET-UP

AUDIO CONNECTIONS and SET-UP:

To reduce chances of vehicle-induced noise generated by radiation from other electrical equipment entering your sound system, use audiophile quality RCA extension cables whenever possible. We recommend Alpine's gold plated, triple shielded wires and accessories for best results. These accessories feature a copper braid/aluminum foil shield which is completely isolated from the signal path. This independent shield will block any radiated noise from entering the audio signal.

A great deal of time and labor will be saved if you invest in high quality signal cables before the system is installed, rather than upgrading after a noise problem surfaces.

Route the sound system's audio cables and power cables separately, as far away from each other as possible, in order to minimize chances of interference from high current power wires (such as power amp battery leads) being picked up by the audio cables.

The Alpine's 3681 is a very versatile and flexible piece of equipment. To achieve this high degree of versatility, many installer-adjustable controls are provided, which affect several modes of operation.

After the 3681 is mounted properly, it should be set up as described below. We recommend using Alpine 4411, 4423 or 4453 extension cables for high quality, reliable and long-lasting connections.

POWER CONNECTIONS:

CAUTION: ALWAYS DISCONNECT THE BATTERY'S NEGATIVE (−) TERMINAL BEFORE STARTING ANY WIRING CONNECTIONS.

Use the diagram on page 11. To insure a low impedance path from battery to the 3681, 12-gauge or larger wire should be used to extend the battery (+) or ground to the system.

A 7.5A in-line fuse should be used as close to the battery's (+) terminal to protect the system.

All audio components should be grounded to a common point on the chassis. This ground point must be verified as a true ground point by its continuity with the battery's (−) terminal. It should also be free of contaminants.

CONTROLS AND SWITCHES

al
 Head Terminal
 al
 or (TO HEAD UNIT)
 or (TO CHANGER)
 nit Connector
 ector
 inector
 Connectors
 A Connectors
 on
 on
 Button
 vN Button
 (CH 3/4)
 Connectors (CH 3/4)

- 21 Midrange Output RCA Connectors (CH 3/4)
- 22 High Output RCA Connectors (CH 3/4)
- 23 ST/MONO Switch (CH 1/2)
- 24 Low Output RCA Connectors (CH 1/2)
- 25 Midrange Output RCA Connectors (CH 1/2)
- 26 High Output RCA Connectors (CH 1/2)
- 27 Mode Switch
- 28 Configuration Switch
- 29 Subwoofer Output Switch
- 30 MID-H Indicator
- 31 X-OVER Indicator
- 32 HIGH Indicator
- 33 L Indicator
- 34 LEVEL Indicator
- 35 TIME CORR. Indicator
- 36 Digital Display
- 37 R Indicator
- 38 MID-L Indicator
- 39 LOW Indicator
- 40 MID Indicator

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POWER CONNECTIONS:

CAUTION: ALWAYS DISCONNECT THE VEHICLE BATTERY'S NEGATIVE (–) TERMINAL BEFORE STARTING ANY WIRING CONNECTIONS.

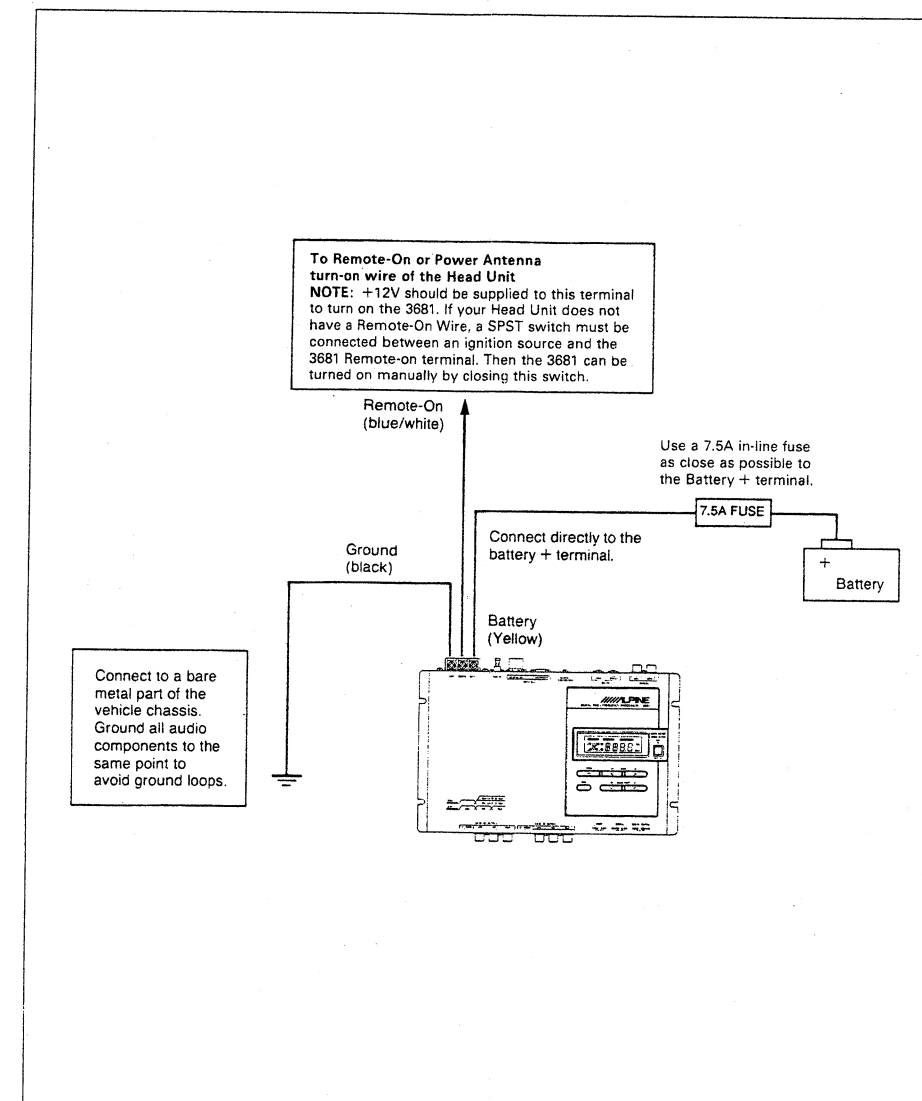
Use the diagram on page 11.

To insure a low impedance path from the vehicle's battery to the 3681, 12-gaugé or larger wire should be used to extend the battery (+) or ground wires.

A 7.5A in-line fuse should be used as close as possible to the battery's (+) terminal to protect the vehicle and the system.

All audio components should be grounded to a common point on the chassis. This grounding point must be verified as a true ground point by checking its continuity with the battery's (–) terminal, using an ohmmeter. It should also be free of paint and contaminants.

WIRING AND SET-UP



OPERATION

Adjusting the Control Buttons

MODE	OPERATION & INDICATION			ADJUSTMENT UP/DN (16/17) Button
	MODE Button 12	BAND UP/DN (13/14) Button		
		Crossover	Channel	
1	X-OVER	LOW	L & R	32.0 — 400.0 Hz
		MID-L		200.0 Hz — 10.0 kHz
		MID-H		
		HIGH		
2	LEVEL	LOW		
		MID		
		HIGH		
3		LOW		L / R
		MID		
		HIGH		
4	TIME CORR.	MID & HIGH	0.0 — 30.0mS	
LOW				
MID				
HIGH				

Before Adjusting

Make sure the illumination of SET-UP button ⑪ is amber. If the illumination is green, press the SET-UP button ⑪ for more than 2 seconds to activate the green.

How to adjust the X-OVER

1. Press the MODE button ⑫ to turn on the X-OVER indicator ⑬.

NOTE:

Also turn on at this time, indicators L ⑭ and R ⑮.

2. Select a desired X-OVER range by pressing the BAND buttons ⑬ and ⑭.

In 2 WAY SYSTEM:

LOW ⑬/MID ⑭/HIGH ⑮ will be selectable.

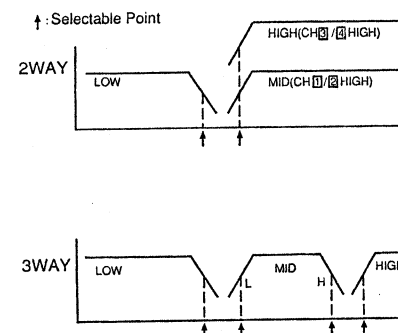
In 3WAY SYSTEM:

LOW ⑬/MID-L ⑭/MID-H ⑮/HIGH ⑯ will be selectable.

3. Select the X-OVER point by pressing the ADJUSTMENT buttons ⑯ and ⑰.

The X-OVER point will appear in the Digital Display ⑱.

4. When your desired X-OVER point is reached, repeat Steps 2-3 as described above to perform next adjustment.



How to adjust the LEVEL

1. Press the MODE button ⑫ to turn on the LEVEL indicator ⑰.

OPERATION

NOTE:

There are two types in the LEVEL ADJUSTMENT mode as shown.

L&R Simultaneous Adjustment Mode:

Used to obtain the same adjustment level for L&R.

NOTE:

However, if L and R levels have been set to different levels in one or more ranges of the three ranges (LOW, MID, HIGH), this mode is not available. In such a case, set the L/R levels to the same level, using the L/R separate adjustment mode and the L&R Simultaneous adjustment mode can be used.

L/R Separate Adjustment Mode:

Allows L/R switching the BAND buttons ⑬ and ⑭.

2. Press the BAND button ⑬ or ⑭ to select a range to be adjusted.
3. Adjust the level by using the ADJUSTMENT buttons ⑯ and ⑰.
4. When the desired level is reached, repeat steps 2-3 as described above to perform the next adjustment.

How to adjust the Time Correction

In 2 WAY SYSTEM:

1. Press the MODE button ⑫ to turn on the TIME CORR. ⑲, MID ⑳ and HIGH ㉑ indicator.
2. Press the BAND button ⑬ or ⑭ to select the channel to be adjusted.
3. Adjusting the Time Correction by using the ADJUSTMENT buttons ⑯ and ⑰.
4. When the desired Time Correction is reached, repeat steps 2-3 as described above to perform to next adjustment.

In 3 WAY SYSTEM:

NOTE:

Time Correction modes are provided.

- (1) MID & HIGH Simultaneous Adjustment Mode: Allows simultaneous time setting in the MID/HIGH ranges.

OPERATION

1. Press the MODE button ⑫ to turn on the TIME CORR. ⑲, MID ⑳ and HIGH ㉑ indicator.
2. Press the BAND button ⑬ or ⑭ to select the channel to be adjusted.
3. Adjusting the Time Correction by using the ADJUSTMENT buttons ⑯ and ⑰.

NOTE:

However, different time settings have been made in the MID and HIGH ranges, the simultaneous adjustment mode is not available. In this case, set the time to the same value, using the separate adjustment mode and the simultaneous adjustment can be used.

(2) LOW/MID/HIGH Separate Adjustment Mode:

1. Press the MODE button ⑫ to activate the LOW/MID/HIGH switching mode.
2. Press the BAND button ⑬ to select a desired range (LOW/MID/HIGH).
3. Adjust the time correction with the ADJUSTMENT buttons ⑯ and ⑰. The time value will be indicator or the Digital Display ⑱.
4. When the desired value is obtained, repeat steps 5-6 for next adjustment.

Saving Current Set-up

1. Press and hold the SAVE button ⑳ until the display flashes. The display will flash for 5 seconds.
2. Press the SAVE button ⑳ again during flashing.
3. The Set-up just saved can be recalled at any time by pressing and releasing the SAVE button ⑳. This allows some experimentation with other settings without fear of losing the current control position.

How to using the SET-UP Button

This button is used to disable the buttons. This prevents them from misadjusted accidentally.

1. Press the SET-UP button ⑪ for seconds.
2. The illumination color of the S ⑪ will change from amber to green the controls are locked.
3. To release the locked condition SET-UP button ⑪ again.

NOTE:

This unit has been developed with digital technology. To obtain 100% accuracy of the functions, the unit has been set up by the dealer you purchased the

OPERATION

Using the SET-UP Button

When the illumination of SET-UP button ⑤ is green, press the SET-UP button ⑤ for more than 2 seconds to turn on the X-OVER.

Adjusting the X-OVER

Press the MODE button ② to turn on the X-OVER indicator ③.

At this time, indicators L ④ and R ④. Press the BAND button ⑥ or ⑦ to select the desired X-OVER range by pressing the BAND buttons ⑥ and ⑦.

2-WAY SYSTEM:

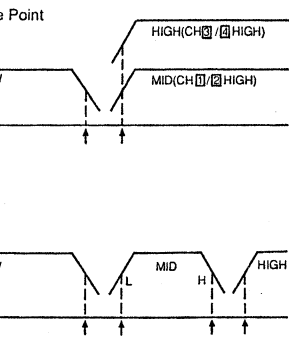
MID ⑧/HIGH ⑧ will be selectable.

3-WAY SYSTEM:

MID-L ⑧/MID-H ⑧/HIGH ⑧ will be selectable.

When the X-OVER point is reached, the X-OVER point will appear in the Digital Display ⑨.

When the desired X-OVER point is reached, repeat Steps 2-3 as described above to perform the next adjustment.



Adjusting the LEVEL

Press the MODE button ② to turn on the X-OVER indicator ③.

NOTE:

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Used to obtain the same adjustment level for L&R.

NOTE:

However, if L and R levels have been set to different levels in one or more ranges of the three ranges (LOW, MID, HIGH), this mode is not available. In such a case, set the L/R levels to the same level, using the L/R separate adjustment mode and the L&R Simultaneous adjustment mode can be used.

L/R Separate Adjustment Mode:
Allows L/R switching the BAND buttons ⑥ and ⑦.

- Press the BAND button ⑥ or ⑦ to select a range to be adjusted.
- Adjust the level by using the ADJUSTMENT buttons ⑧ and ⑨. The level will appear in the Digital Display ⑨.
- When the desired level is reached, repeat steps 2-3 as described above to perform the next adjustment.

How to adjust the Time Correction

In 2 WAY SYSTEM:

- Press the MODE button ② to turn on the TIME CORR. ⑩, MID ⑧ and HIGH indicator ⑧.
- Press the BAND button ⑥ or ⑦ to select the channel to be adjusted.
- Adjusting the Time Correction by using the ADJUSTMENT buttons ⑧ and ⑨. The TIME CORR. will appear in the Digital Display ⑨.
- When the desired Time Correction is reached, repeat steps 2-3 as described above to perform the next adjustment.

In 3 WAY SYSTEM:

NOTE:

Time Correction modes are provided.

- MID & HIGH Simultaneous Adjustment Mode:**
Allows simultaneous time setting in the MID/HIGH ranges.

OPERATION

How to using the SET-UP Button ⑤

This button is used to disable the adjustment buttons. This prevents them from being misadjusted accidentally.

- Press the SET-UP button ⑤ for more than 2 seconds.
- The illumination color of the SET-UP button ⑤ will change from amber to green, showing the controls are locked.
- To release the locked condition, press the SET-UP button ⑤ again.

NOTE:

This unit has been developed with the latest digital technology. To obtain 100% performance of the functions, the unit has we recommend you to set up the system by consulting with the dealer you purchased the unit.

- Press the MODE button ② to turn on the TIME CORR. ⑩, MID ⑧ and HIGH indicator ⑧.
- Press the BAND button ⑥ or ⑦ to select the channel to be adjusted.
- Adjusting the Time Correction by using the ADJUSTMENT buttons ⑧ and ⑨. The TIME CORR. will appear in the Digital Display ⑨.

NOTE:

However, different time settings have been made in the MID and HIGH ranges, the simultaneous adjustment mode is not available. In this case, set the time to the same value, using the separate adjustment mode and the simultaneous adjustment can be used.

(2) LOW/MID/HIGH Separate Adjustment Mode:

- Press the MODE button ② to activate the LOW/MID/HIGH switching mode.
- Press the BAND button ⑥ to select a desired range (LOW/MID/HIGH).
- Adjust the time correction with the ADJUSTMENT buttons ⑧ and ⑨. The time value will be indicator or the Digital Display ⑨.
- When the desired value is obtained, repeat steps 5-6 for next adjustment.

Saving Current Set-up

- Press and hold the SAVE button ⑪ until the display flashes. The display will flash for 5 seconds.
- Press the SAVE button ⑪ again during flashing.
- The Set-up just saved can be recalled at any time by pressing and releasing the SAVE button ⑪. This allows some experimentation with other settings without fear of losing the current control position.

ADJUSTMENTS

GENERAL REQUIREMENTS:

The Alpine 3681 is a very precise and versatile piece of equipment. It should be adjusted by an auto-sound specialist who possesses the knowledge and the tools to accomplish this task accurately. It would be helpful to use a Real Time Analyzer (such as Alpine 4780), but it is not absolutely necessary.

* It is imperative to have easy access to the 3681 while it is being adjusted. If it is to be mounted permanently in a location which will not allow easy access, it will be necessary to temporarily relocate the unit by using long audio and power extension wires.

* Before any adjustments can be made, all stereo system components (except for the 3681) must be permanently mounted in their locations, and the passenger compartment should be completely re-assembled, as removed door panels or seats will affect the frequency response of the vehicle's interior.

* The vehicle's doors should be closed and windows rolled up. This may require temporary relocation of the 3681 outside the vehicle's passenger compartment (if it is to be permanently mounted there) using long extension wires.

* The trunk can be left open if the passenger compartment, including all the speakers and speaker enclosures, are sealed off from the trunk.

* Check the component speakers' specifications for their rated frequency response. The active crossover frequencies used for each speaker must fall within its frequency response. For example, a mid-bass woofer rated from 60Hz to 300 Hz must not be driven with frequencies lower than 60 Hz or higher than 300 Hz. Otherwise, the sound quality will be severely degraded and speaker damage may also result. Therefore, tentatively adjust the 3681 crossover points not to exceed the frequency response of the drivers and remember to stay within these boundaries during the adjustment procedure.

RTA (Real Time Analyzer) REQUIREMENTS AND SET-UP

* It will be most convenient to have the 3681 as close as possible to the RTA during adjustments as it is easier to monitor the changes made by each control.

* This RTA should cover at least 20 Hz to 20 kHz in at least one-octave increments. It should also possess the ability to analyze and display frequency response at 100 dB or more Sound Pressure Level (SPL).

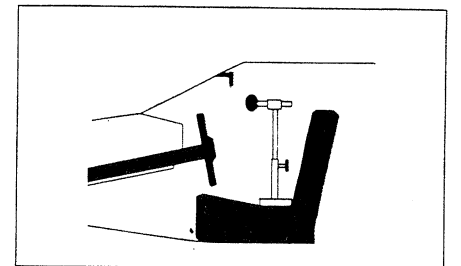
* As there are many different makes and models of Real Time Analyzers, it would be impractical to define set-up procedures for a specific unit. Therefore, you will need to familiarize yourself with the particular model of RTA you will be using to adjust the 3681. The RTA's owner's manual can provide all the necessary information. Alpine's 4780 Third Octave Analyzer can provide excellent accuracy, versatility and ease of operation.

* A high quality, calibrated microphone should be used with the RTA. The RTA manufacturer can recommend a suitable model. This microphone should have a very flat response throughout the audio bandwidth (20 Hz to 20 kHz). The Alpine 4780 RTA includes a calibrated microphone.

NOTE: RTA adjustments must be done in quiet surroundings. Noise from wind, traffic, or other car stereo systems will affect the RTA readings and throw off the adjustments.

After all the general requirements are met, proceed as follows:

- Position the microphone on a microphone stand placed on the driver's seat, in the same position and height as the right ear of the driver.



- Connect the microphone to the RTA. Set the controls for non-weighting and greater than 100 dB range.

ADJUSTMENTS

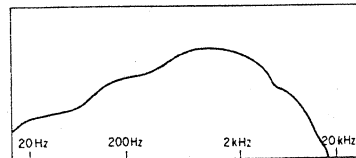
ADJUSTMENT USING AN RTA:

1. Turn the sound system on, verify that all components are functional, and place all controls such as Bass, Treble, Fader, Balance, in-dash equalizer controls (if any) and 4313 Remote Subwoofer Level Control (if used) are in the center detent (neutral) position. Also verify that the Input Mode Switch, Subwoofer Fading Mode Switch, Subwoofer Stereo/Mono Switch, and Front and Rear Crossover Mode Switches are set as needed.

2. Using a test CD or tape such as the Alpine Official Reference Software, select the "Pink Noise" track and set the volume control of the system for a nominal 100 dB average sound pressure level.

Perform the following steps with all doors closed, windows rolled up, and the vehicle interior completely intact:

3. This sound level will give you a display on the RTA screen. This display is the frequency response of the total system (the sound system and the vehicle's interior together). It may look somewhat similar to the one shown below:



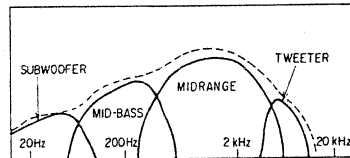
This display shows how many decibels of sound pressure exist at each frequency. A pleasant sounding system should have a smooth frequency response transition. Also, the relative balance between the different drivers' output levels must be correct.

Due to different component speaker efficiencies, power amplifier sensitivity, vehicle interior resonances, speaker and speaker enclosure non-linearities or interior audio section frequency response, an unadjusted system may have many peaks and dips in its frequency response.

The 3681 can be adjusted to balance the acoustical response and reduce other non-linearities. Certain frequency regions can also be boosted or cut to overcome road noise or to accommodate listener preferences.

4. If you are using a head unit with separate front and rear pre-outs, verify that the 2-input mode is selected, and fade to the front. Make sure that the rear drivers are defeated. Remember to keep the vehicle doors and windows closed during adjustments.

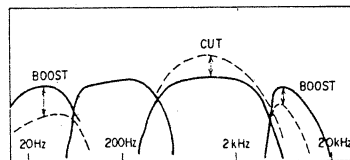
5. Analyze the spectrum display on the RTA to detect any imbalances between the output levels of each component driver. For example, in the display shown, the Subwoofer's response is lower than the mid-bass driver and the mid-bass driver's response is lower than the midrange speaker.



6. Find out which speaker's output is the lowest compared to the other bands. This will be the Reference for all other bands.

In the example shown above, the SUBWOOFER output is the lowest. Therefore, the MID-BASS, MID-RANGE and TWEETER outputs must all be cut in varied amounts for proper adjustment.

7. While observing the RTA screen, adjust the output level control to properly shape and smooth out the level differences.



8. Adjust and fine-tune the crossover points for each region to further smooth out the acoustical response.

9. If your head unit has a single pre-amp output only, skip to item 12.

10. Fade to the rear, check for defeated front speakers, close all vehicle doors and windows, and repeat steps 5 through 8.

ADJUSTMENTS

11. Re-center the fader control, verify that all speakers are functional, close all the vehicle doors and windows, and repeat steps 5 through 8.

12. The Subwoofer output, CH 1/2 High or CH 3/4 High output (or any other output) level can now be increased or decreased for customer preferences such as more low bass or more emphasized highs.

13. Using a high quality music source, carefully evaluate the sound and perform any additional adjustments as necessary.

NOTE: It is almost always necessary to dial-in additional sub-bass boost in order to overcome road noise which increases with the vehicle's speed. If using the Alpine 4313 Remote Subwoofer Level Control, adjustment in a stationary car is sufficient. The bass output can be increased or reduced by the user. Furthermore, the original setting can also be restored by returning the control to its center detent.

14. If the 4313 Remote Subwoofer Level Control was not installed, it will be necessary to test-drive the car, listen, and set the 3681's Subwoofer level control to a compromised value between the optimum setting for stationary and freeway speed conditions.

ADJUSTMENT WITHOUT AN RTA:

1. The unit should be temporarily moved to the driver's seat vicinity using long extension cables, and the adjustment should be done with the installer in the driver's seat.

2. A high quality source material (music) with excellent sound quality and frequency response must be used.

3. Turn the sound system on, verify that all components are functional, and place all controls such as Bass, Treble, Fader, Balance, in-dash equalizer controls (if any) and the 4313 Remote Subwoofer Level Control (if used) are in the center detent (neutral) position. Also verify that the Input Mode Switch, Subwoofer Fading Mode Switch, Subwoofer Stereo/Mono Switch, and CH 1/2 and CH 3/4 Crossover Mode Switches are set as needed.

Perform the following steps while seated in the driver's seat, with all doors, windows and trunk closed, and the vehicle interior completely intact.

4. If you are using a head unit with separate front and rear pre-outs, verify that the 2-input mode is selected, and fade to the front. Make sure that the rear drivers are defeated.

5. Listen carefully and try to find output level imbalance between the different component speakers.

6. If such an imbalance exists, determine which output level is the lowest.

7. Try to keep the output level for that band (or bands) at 0 dB if possible.

8. Cut the other bands, as necessary, to balance the sound.

9. Adjust and fine-tune the crossover points for each region for the most smooth and pleasant sound.

10. If your head unit has a single pre-amp output only, skip to item 13.

11. Fade to the rear, check for defeated front speakers, close all vehicle doors and windows, and repeat steps 5 through 9.

12. Re-center the fader control, verify that all speakers are functional, close all the vehicle doors and windows, and repeat steps 5 through 11.

13. The Subwoofer output, CH 1/2 High or CH 3/4 High output (or any other output) level can now be increased or decreased for listener preferences such as more low bass or more emphasized highs.

14. Using a high quality music source, carefully evaluate the sound and perform any additional adjustments as necessary.

NOTE: It is almost always necessary to dial-in additional sub-bass boost in order to overcome road noise which increases with the vehicle's speed. If using the Alpine 4313 Remote Subwoofer Level Control, adjustment in a stationary car is sufficient. The bass output can be increased or reduced by the user. Furthermore, the original setting can also be restored by returning the control to its center detent.

15. If the 4313 Remote Subwoofer Level Control was not installed, it will be necessary to test-drive the car, listen, and set the 3681's Subwoofer level control to a compromised value between the optimum setting for stationary and freeway speed conditions.

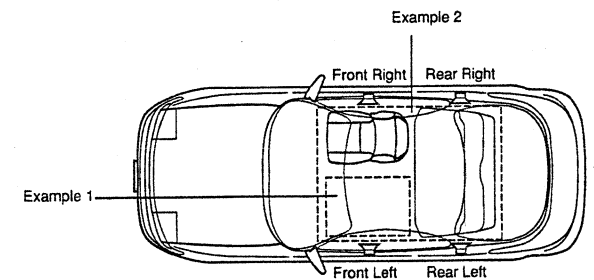
ADJUSTMENTS

TIME CORRECTION ADJUSTMENT

The time correction function in 3681 is provided to adjust sound timing reading from each speaker to listeners inside the car. The adjustment will be made for each speaker in a step of 0.3mS. Very natural sound image with a good feeling of the sound location will be obtained by adjusting the time correction to the seat position.

Example 1. Listening Position: Front
Adjust the time correction level of speaker in low and the rear right in high level.

Example 2. Listening Position: All
Adjust the time correction level of each speaker to almost the same level.



On the Control Unit 4381

When performing adjustment of 3681 in the Alpine dealers, a dedicated control unit of 4381 will be used.

In this case, connect the 4381 to the Remote Control Unit Connector ②.

ADJUSTMENTS

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ADJUSTMENTS

TIME CORRECTION ADJUSTMENT

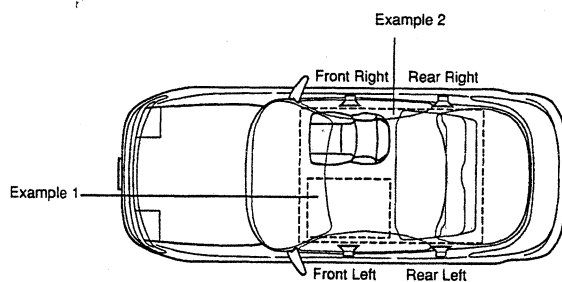
The time correction function in 3681 is provided to adjust sound timing reading from each speaker to listeners inside the car. The adjustment will be made for each speaker in a step of 0.3mS. Very natural sound image with a good feeling of the sound location will be obtained by adjusting the time correction to the seat position.

Example 1. Listening Position: Front Left Seat

Adjust the time correction level of the front left speaker in low and the rear right in considerably high level.

Example 2. Listening Position: All Seats

Adjust the time correction level of each speaker to almost the same level.



On the Control Unit 4381

When performing adjustment of 3681 in the Alpine dealers, a dedicated control unit of 4381 will be used.

In this case, connect the 4381 to the Remote Control Unit Connector ②.

5. Listen carefully and try to find output level imbalance between the different component speakers.

6. If such an imbalance exists, determine which output level is the lowest.

7. Try to keep the output level for that band (or bands) at 0 dB if possible.

8. Cut the other bands, as necessary, to balance the sound.

9. Adjust and fine-tune the crossover points for each region for the most smooth and pleasant sound.

10. If your head unit has a single pre-amp output only, skip to item 13.

11. Fade to the rear, check for defeated front speakers, close all vehicle doors and windows, and repeat steps 5 through 9.

12. Re-center the fader control, verify that all speakers are functional, close all the vehicle doors and windows, and repeat steps 5 through 11.

13. The Subwoofer output, CH 1/2 High or CH 3/4 High output (or any other output) level can now be increased or decreased for listener preferences such as more low bass or more emphasized highs.

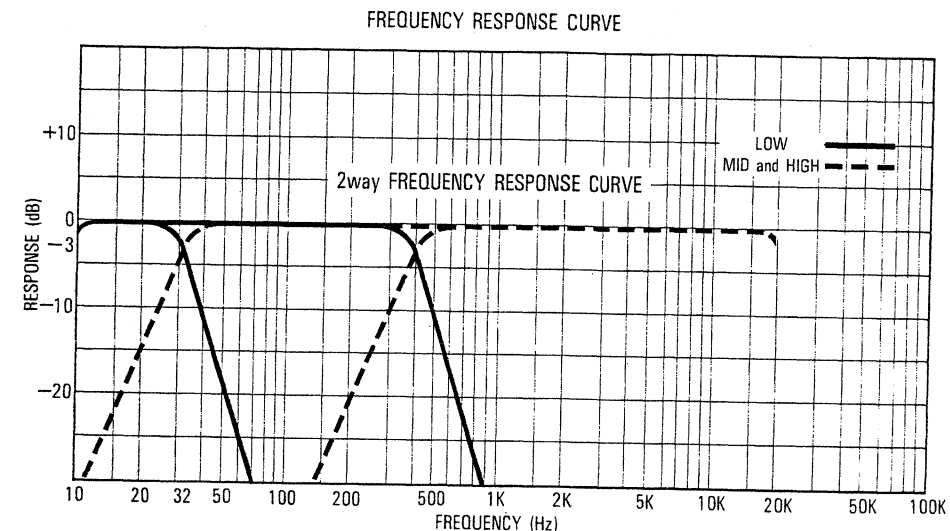
14. Using a high quality music source, carefully evaluate the sound and perform any additional adjustments as necessary.

NOTE: It is almost always necessary to dial-in additional sub-bass boost in order to overcome road noise which increases with the vehicle's speed. If using the Alpine 4313 Remote Subwoofer Level Control, adjustment in a stationary car is sufficient. The bass output can be increased or reduced by the user. Furthermore, the original setting can also be restored by returning the control to its center detent.

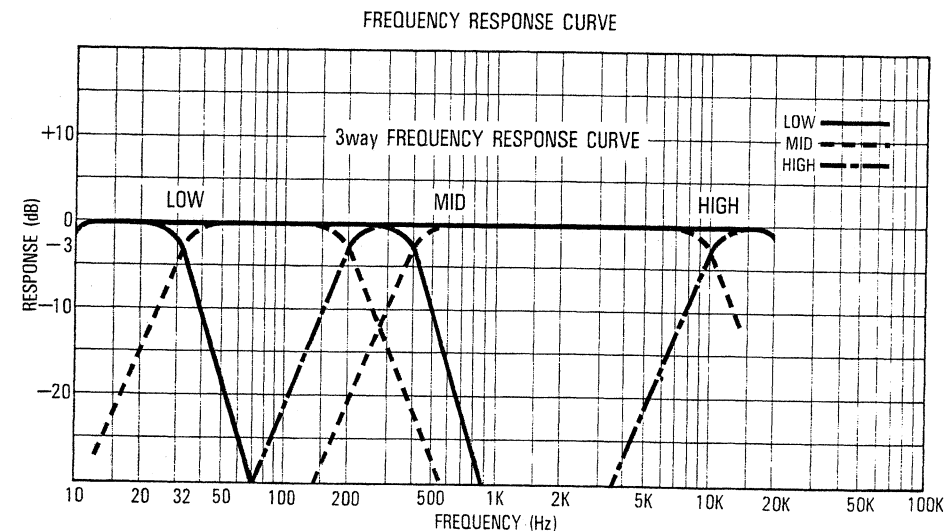
15. If the 4313 Remote Subwoofer Level Control was not installed, it will be necessary to test-drive the car, listen, and set the 3681's Subwoofer level control to a compromised value between the optimum setting for stationary and freeway speed conditions.

CHARACTERISTIC CURVES

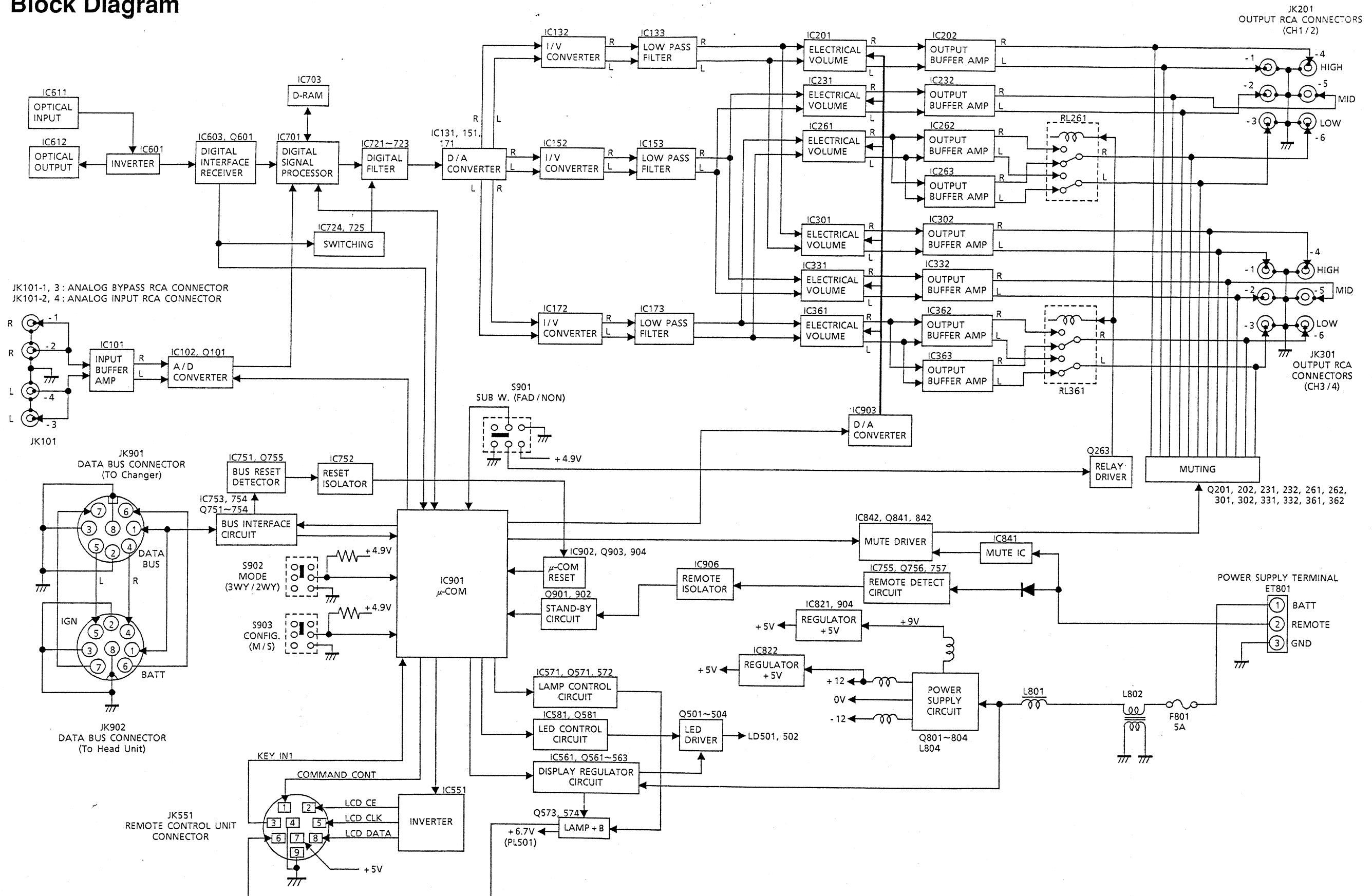
CH 1/2 OUTPUT RESPONSE:



CH 3/4 OUTPUT RESPONSE:



Block Diagram



MEMO

5

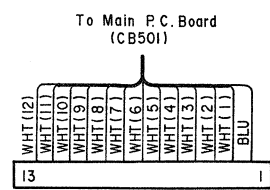
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PANEL D/A 3681

The diagram illustrates the 16-bit data bus architecture. A central horizontal line represents the data bus, with labels 'To CHI31', 'To CHI51', 'To CHI71', 'To CHI91', and 'To CH301' positioned above it. Below the bus, five modules are shown, each with a vertical stack of components:

- Module 1 (To CHI31):** Labeled 'ORG' on the left. It contains a box with '1' and '6' at the top, and a vertical stack of five boxes labeled 'WHT(1)', 'WHT(2)', 'WHT(3)', 'WHT(4)', and 'WHT(5)'. A line connects the bottom of this stack to the bus.
- Module 2 (To CHI51):** Labeled 'ORG' on the left. It contains a box with '1' and '6' at the top, and a vertical stack of five boxes labeled 'WHT(1)', 'WHT(2)', 'WHT(3)', 'WHT(4)', and 'WHT(5)'. A line connects the bottom of this stack to the bus.
- Module 3 (To CHI71):** Labeled 'ORG' on the left. It contains a box with '1' and '6' at the top, and a vertical stack of five boxes labeled 'WHT(1)', 'WHT(2)', 'WHT(3)', 'WHT(4)', and 'WHT(5)'. A line connects the bottom of this stack to the bus.
- Module 4 (To CHI91):** Labeled 'RED' on the left. It contains a box with '1' and '5' at the top, and a vertical stack of four boxes labeled 'WHT(1)', 'WHT(2)', 'WHT(3)', and 'WHT(4)'. A line connects the bottom of this stack to the bus.
- Module 5 (To CH301):** Labeled 'YEL' on the left. It contains a box with '1' and '5' at the top, and a vertical stack of five boxes labeled 'WHT(1)', 'WHT(2)', 'WHT(3)', 'WHT(4)', and 'WHT(5)'. A line connects the bottom of this stack to the bus.

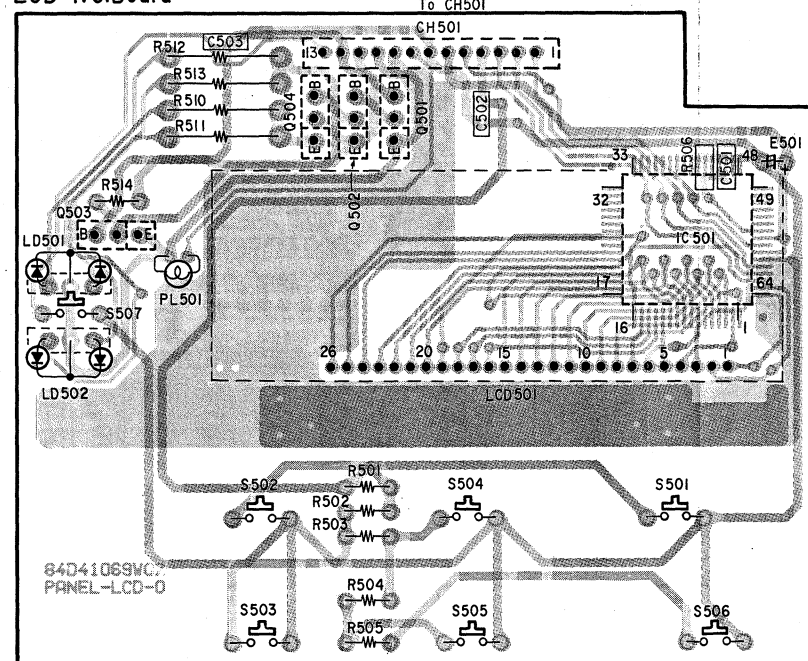
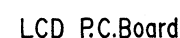
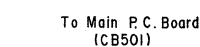
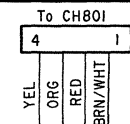
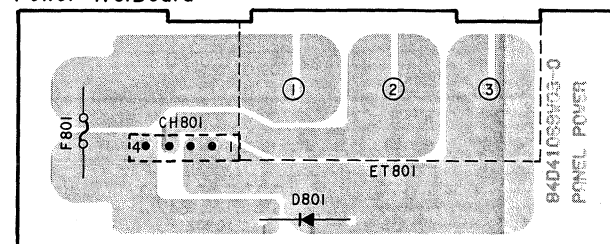
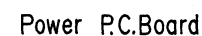
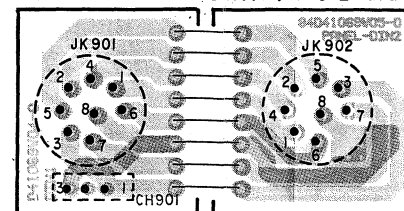
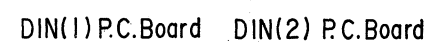
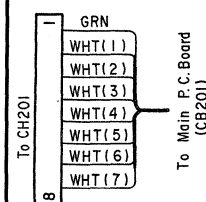
At the bottom of the diagram, a line connects the bus to the label 'To Main P.C.Board'.

To Main P.C.Board



Orange Pattern : Component Side Pattern
Blue Pattern : Foil Side Pattern

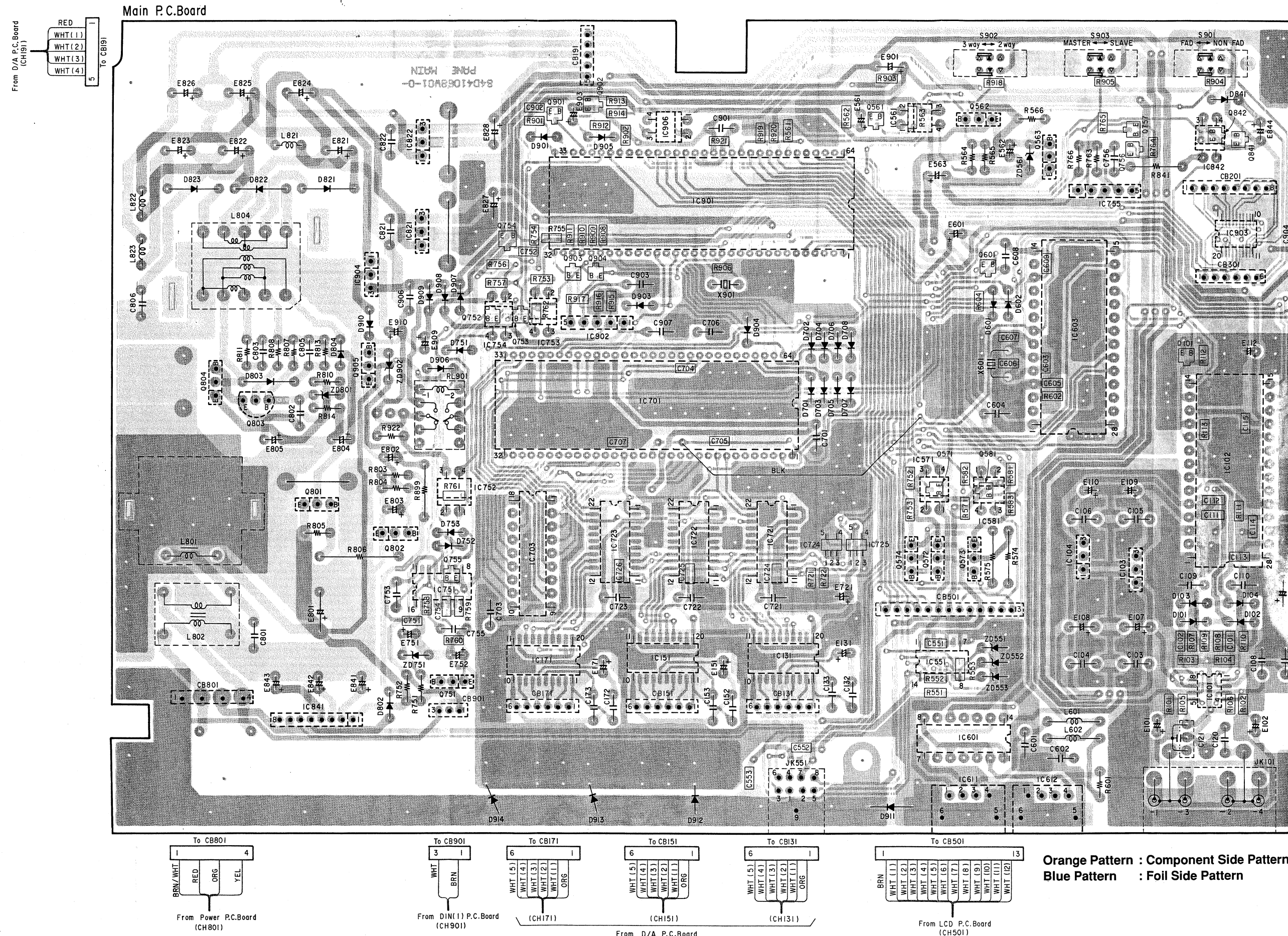
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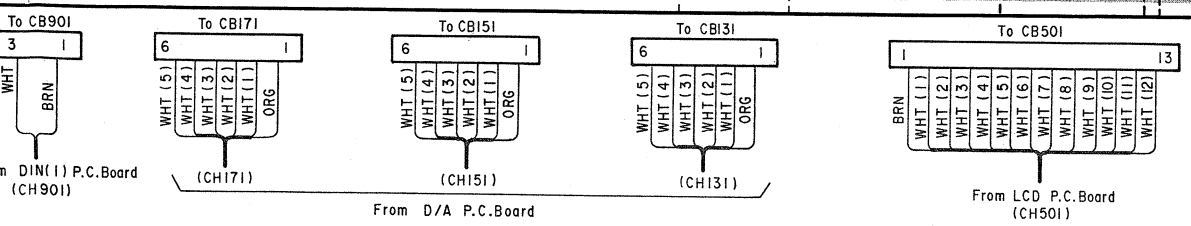
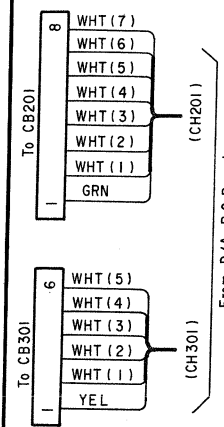
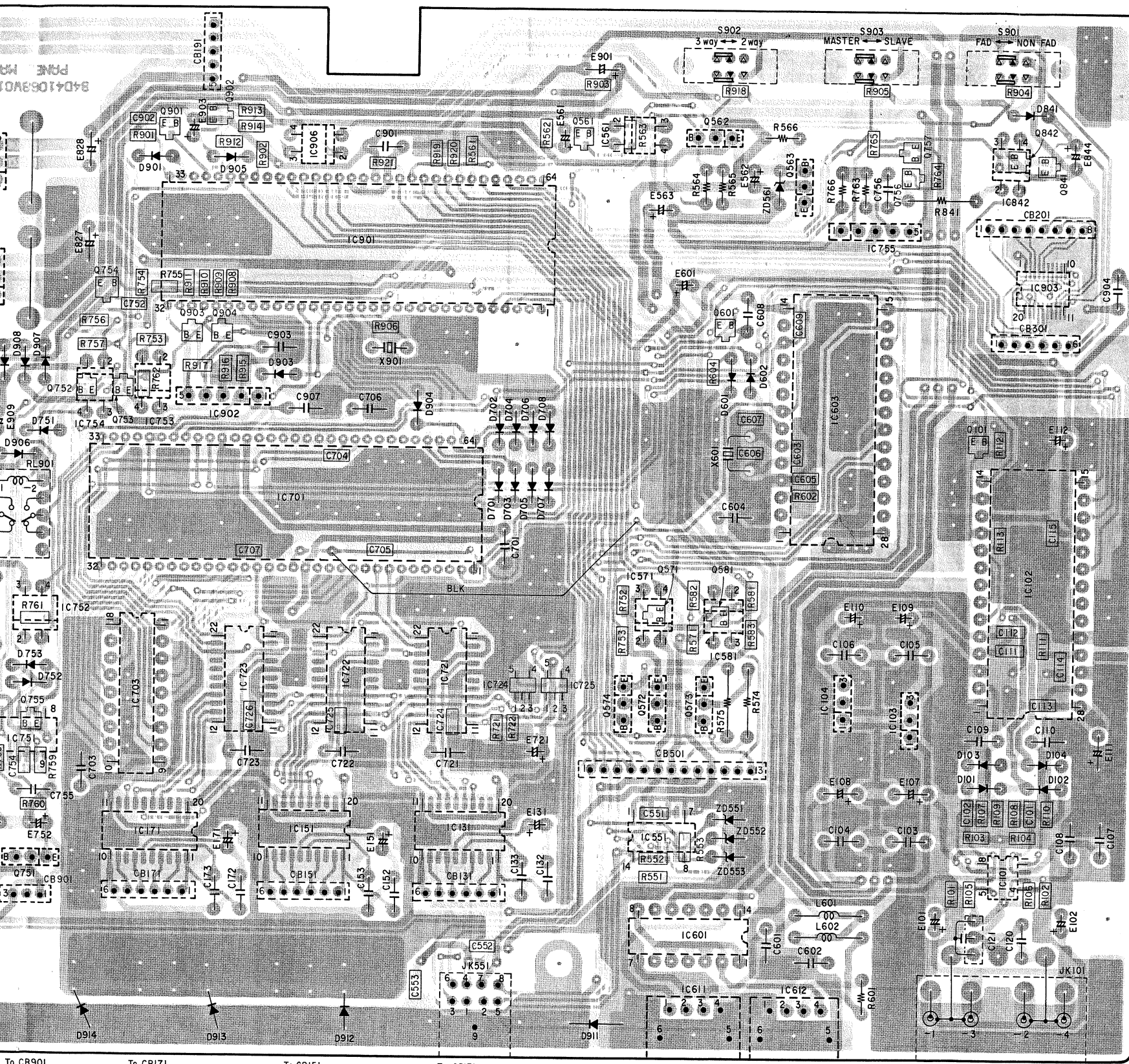
Orange Pattern : Component Side Pattern
Blue Pattern : Foil Side Pattern

Parts Layout on P.C.Boards and Wiring Diagram (2/2)

All P. C. Boards viewed from soldered side.



Orange Pattern : Component Side Pattern
Blue Pattern : Foil Side Pattern



Orange Pattern : Component Side Pattern
Blue Pattern : Foil Side Pattern

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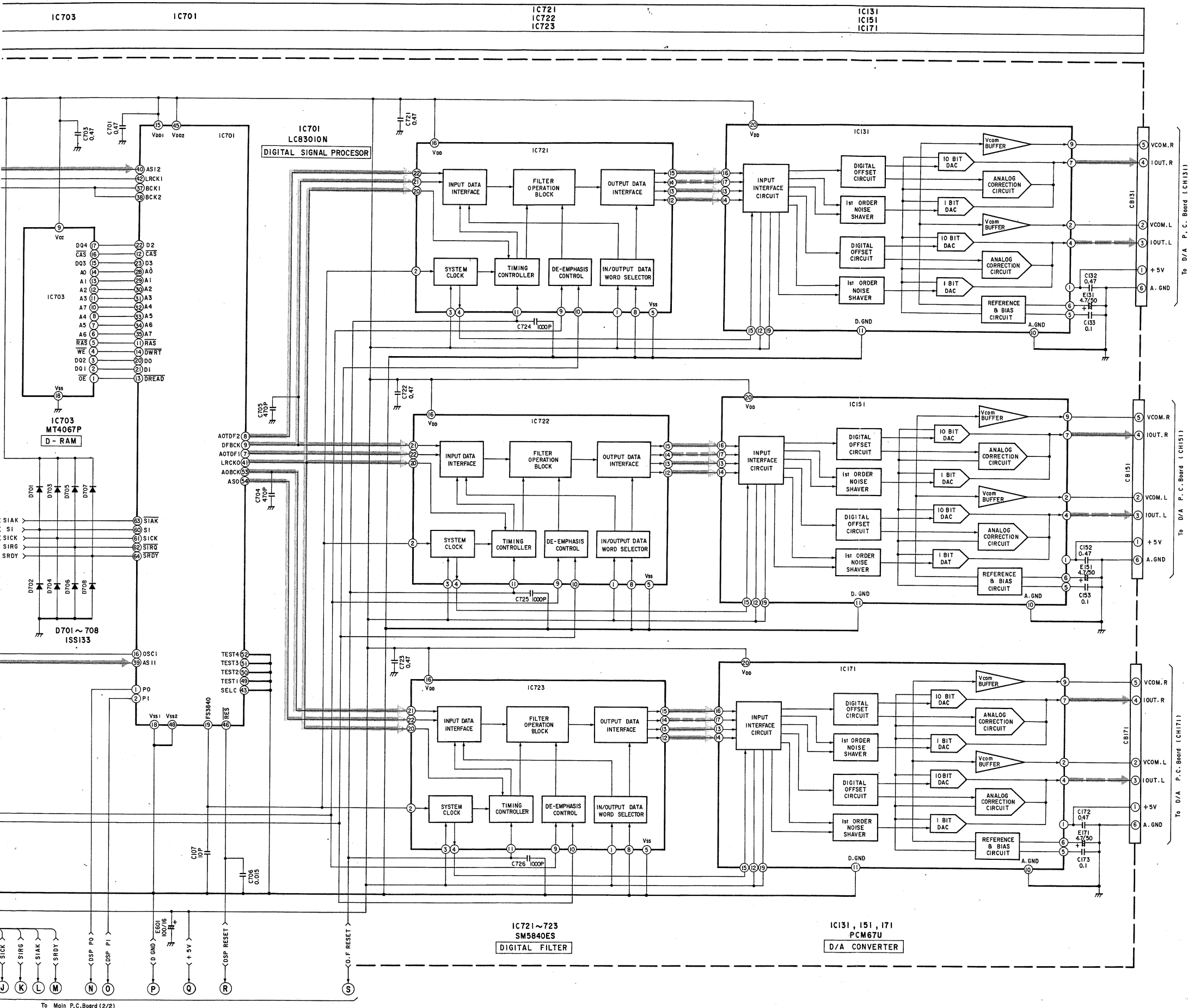
E

F — 26 —

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NOTE:
1. All resistance values are in ohms. K= 1,000 M= 1,000,000
2. All capacitance values are in microfarads. P= 1/1,000,000



Pin	Voltage
1	4mV
2	2.2mV
3	1.9mV
4	-12.2V
5	1.9mV
6	2.1mV
7	3.9mV
8	12.7V

	IC103	IC104	IC611	IC612	IC613
Pin	Voltage	Voltage	Voltage	Voltage	Voltage
1	5V	-5V	0.34V	0V	15V
2	0V	-12.2V	0V	2.2V	10.8V
3	12.7V	0V	5V	5V	10.8V
4			0V	12.8mV	10.8V
5					

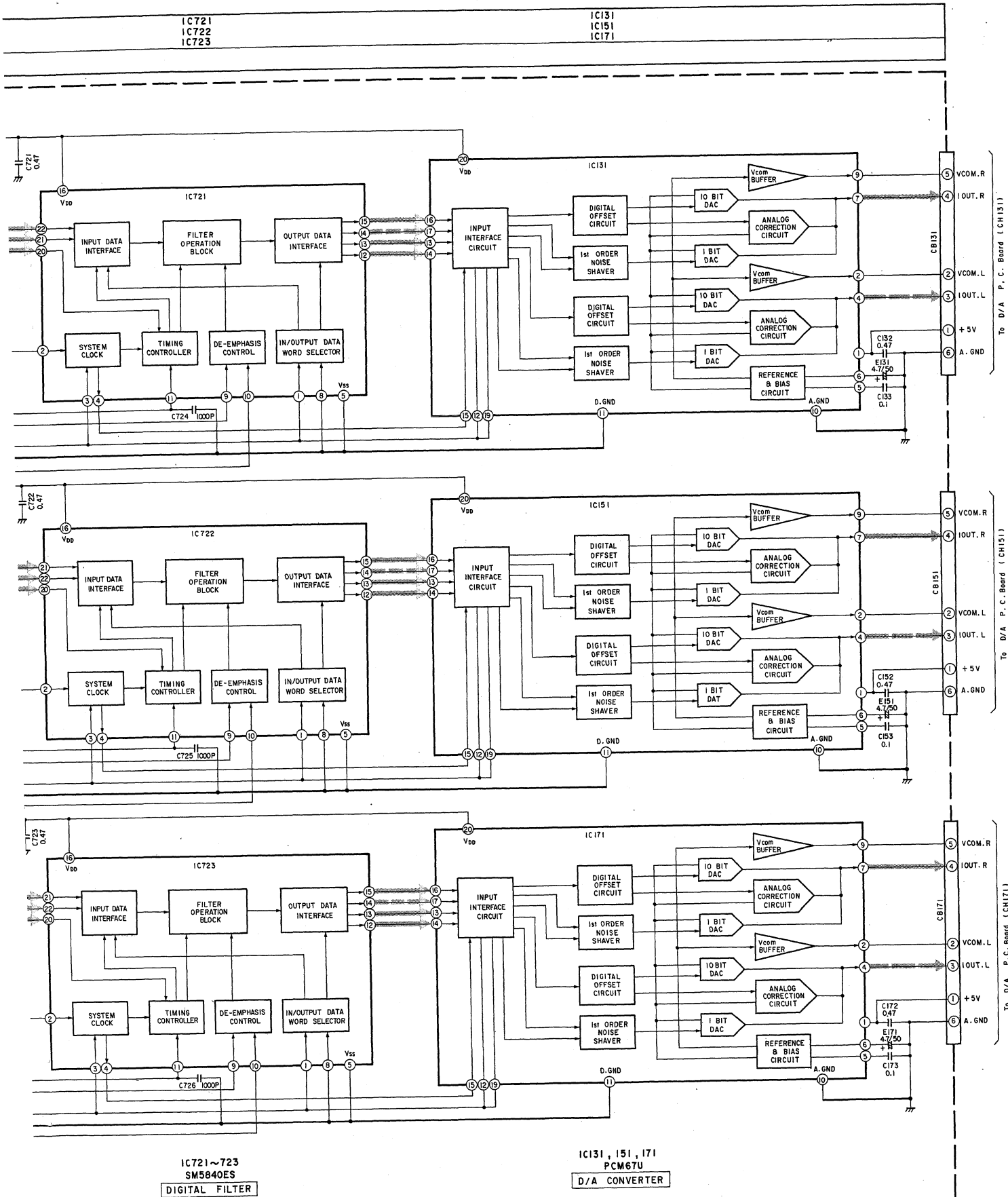
Pin	Voltage
1	5V
2	12.8mV
3	5V
4	12.8mV
5	5V
6	12.8mV
7	0V
8	5V
9	10.8mV
10	10.8mV
11	5V
12	5V
13	0.34V
14	5V

	IC131	IC151	IC171	IC703	IC701
Pin	Voltage	Voltage	Voltage	Voltage	Voltage
1	5V	5V	5V	Pulse	Pulse
2	3.5V	3.5V	3.5V	Pulse	Pulse
3	NC	NC	NC	Pulse	Pulse
4	3.5V	3.6V	3.6V	Pulse	Pulse
5	3.0V	3.1V	3.3V	Pulse	Pulse
6	4.2V	4.3V	4.3V	Pulse	Pulse
7	3.6V	3.6V	3.6V	Pulse	Pulse
8	NC	NC	NC	Pulse	Pulse
9	3.5V	3.6V	3.6V	5V	5V
10	0V	0V	0V	Pulse	15V
11	0V	0V	0V	Pulse	4V
12	5V	5V	5V	Pulse	Pulse
13	Pulse	Pulse	Pulse	Pulse	Pulse
14	Pulse	Pulse	Pulse	Pulse	Pulse
15	Pulse	Pulse	Pulse	Pulse	Pulse
16	Pulse	Pulse	Pulse	Pulse	Pulse
17	Pulse	Pulse	Pulse	Pulse	Pulse
18	NC	NC	NC	0V	
19	5V	5V	5V		Pulse
20	5V	5V	5V		Pulse
21					Pulse
22					Pulse

IC701					
Pin	Voltage	Pin	Voltage	Pin	Voltage
1	24.8mV	23	Pulse	45	5V
2	24.5mV	24	NC	46	4.9V
3	NC	25	NC	47	NC
4	NC	26	NC	48	0V
5	NC	27	NC	49	0V
6	NC	28	Pulse	50	0V
7	Pulse	29	Pulse	51	0V
8	Pulse	30	Pulse	52	0V
9	Pulse	31	Pulse	53	Pulse
10	NC	32	Pulse	54	Pulse
11	Pulse	33	Pulse	55	NC
12	Pulse	34	Pulse	56	NC
13	Pulse	35	Pulse	57	NC
14	Pulse	36	NC	58	NC
15	5V	37	Pulse	59	NC
16	Pulse	38	Pulse	60	8.3mV
17	NC	39	10.7mV	61	4.9V
18	0V	40	Pulse	62	4.9V
19	Pulse	41	Pulse	63	5V
20	Pulse	42	Pulse	64	5V
21	Pulse	43	0V		
22	Pulse	44	NC		

Ref. No.	E	C	B
Q601	0V	12.8mV	4.9V

NOTE:
1. All resistance values are in ohms. K= 1,000 M= 1,000,000
2. All capacitance values are in microfarads. P= 1/1,000,000



IC101

Pin	Voltage
1	4mV
2	2.2mV
3	1.9mV
4	-12.2V
5	1.9mV
6	2.1mV
7	3.9mV
8	12.7V

IC601

Pin	Voltage
1	5V
2	12.8mV
3	5V
4	12.8mV
5	5V
6	12.8mV
7	0V
8	5V
9	10.8mV
10	10.8mV
11	5V
12	5V
13	0.34V
14	5V

Pin	IC103	IC104	IC611	IC612	IC724	IC725
1	5V	-5V	0.34V	0V	157mV	5V
2	0V	-12.2V	0V	2.2V	10.8mV	10.8mV
3	12.7V	0V	5V	5V	0V	0V
4			0V	12.8mV	10.8mV	10.8mV
5					5V	5V

Pin	IC131	IC151	IC171	IC703	IC721	IC722	IC723
1	5V	5V	5V	Pulse	5V	5V	5V
2	3.5V	3.5V	3.5V	Pulse	Pulse	Pulse	Pulse
3	NC	NC	NC	Pulse	5V	5V	5V
4	3.5V	3.6V	3.6V	Pulse	Pulse	Pulse	Pulse
5	3.0V	3.1V	3.3V	Pulse	0V	0V	0V
6	4.2V	4.3V	4.3V	Pulse	NC	NC	NC
7	3.6V	3.6V	3.6V	Pulse	NC	NC	NC
8	NC	NC	NC	Pulse	0V	0V	0V
9	3.5V	3.6V	3.6V	5V	5V	5V	5V
10	0V	0V	0V	Pulse	157mV	157mV	157mV
11	0V	0V	0V	Pulse	4.9V	4.9V	4.9V
12	5V	5V	5V	Pulse	Pulse	Pulse	Pulse
13	Pulse	Pulse	Pulse	Pulse	Pulse	Pulse	Pulse
14	Pulse	Pulse	Pulse	Pulse	Pulse	Pulse	Pulse
15	Pulse	Pulse	Pulse	Pulse	Pulse	Pulse	Pulse
16	Pulse	Pulse	Pulse	Pulse	5V	5V	5V
17	Pulse	Pulse	Pulse	Pulse	NC	NC	NC
18	NC	NC	NC	0V	NC	NC	NC
19	5V	5V	5V		NC	NC	NC
20	5V	5V	5V		Pulse	Pulse	Pulse
21					Pulse	Pulse	Pulse
22					Pulse	Pulse	Pulse

Pin	IC102	IC603
1	0V	5V
2	1.6mV	NC
3	0V	5V
4	5V	0V
5	-5V	Pulse
6	13.5mV	Pulse
7	11.9mV	12.8mV
8	NC	Pulse
9	11.9mV	NC
10	13.5mV	NC
11	0V	NC
12	5V	Pulse
13	0V	NC
14	Pulse	0V
15	Pulse	Pulse
16	Pulse	10.8mV
17	Pulse	10.7mV
18	5V	Pulse
19	0V	NC
20	Pulse	NC
21	Pulse	10.7mV
22	NC	5V
23	Pulse	10.8mV
24	0V	10.8mV
25	5V	NC
26	0V	NC
27	1.8mV	NC
28	-3.6V	10.8mV

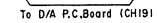
Pin	Voltage	Pin	Voltage	Pin	Voltage
1	24.8mV	23	Pulse	45	5V
2	24.5mV	24	NC	46	4.9V
3	NC	25	NC	47	NC
4	NC	26	NC	48	0V
5	NC	27	NC	49	0V
6	NC	28	Pulse	50	0V
7	Pulse	29	Pulse	51	0V
8	Pulse	30	Pulse	52	0V
9	Pulse	31	Pulse	53	Pulse
10	NC	32	Pulse	54	Pulse
11	Pulse	33	Pulse	55	NC
12	Pulse	34	Pulse	56	NC
13	Pulse	35	Pulse	57	NC
14	Pulse	36	NC	58	NC
15	5V	37	Pulse	59	NC
16	Pulse	38	Pulse	60	8.3mV
17	NC	39	10.7mV	61	4.9V
18	0V	40	Pulse	62	4.9V
19	Pulse	41	Pulse	63	5V
20	Pulse	42	Pulse	64	5V
21	Pulse	43	0V		
22	Pulse	44	NC		

Ref. No.	E	C	B
Q601	0V	12.8mV	4.9V

Ref. No.	E	C	B
Q101	0V	13.5mV	4.9V

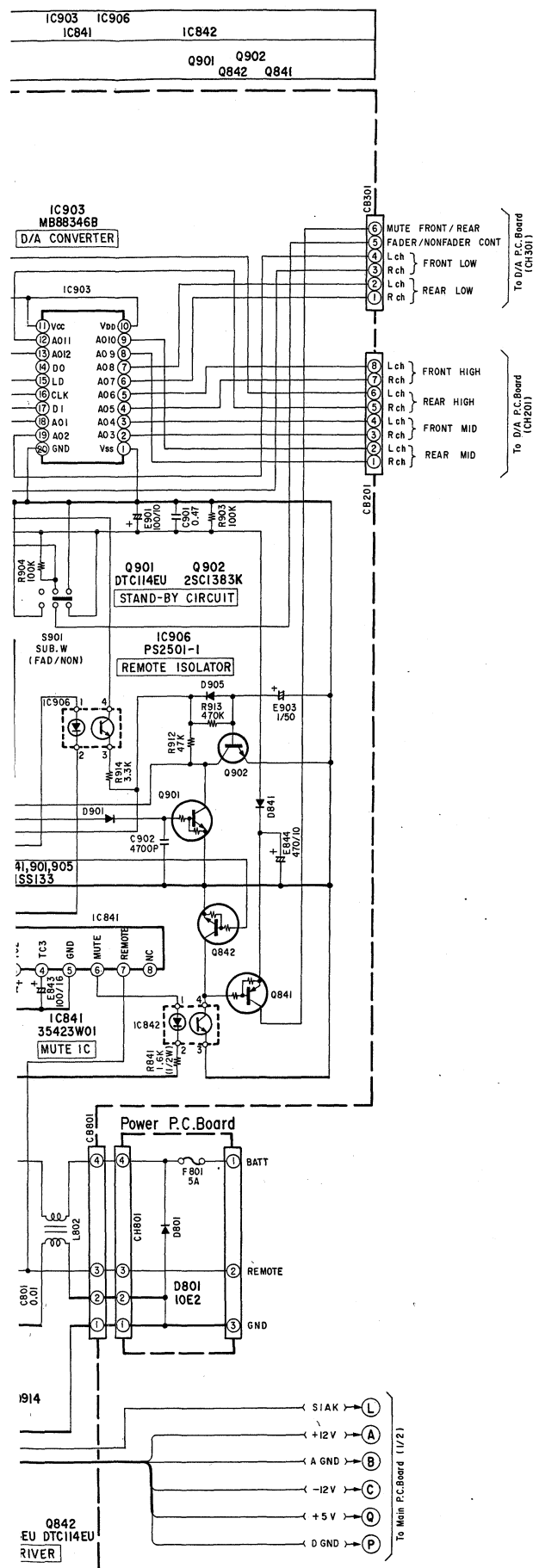
Measuring Condition
1. Power Supply Voltage : DC14.4V
2. Measuring Meter : Digital Voltmeter
3. Measuring Point Reference : Secondary Ground
4. Measuring Condition : No Signal Input

3681



NOTE:

1. All resistance values are in ohms. K= 1,000 M= 1,000,000
2. All capacitance values are in microfarads. P= 1/1,000,000



	IC821	IC822	IC902	IC904
Pin	Voltage	Voltage	Voltage	Voltage
1	5V	5V	5V	5.6V
2	0V	0V	2.1V	0.6V
3	9V	12.7V	0V	9V
4			1.2V	
5			4.9V	

	IC752	IC753	IC842	IC906
Pin	Voltage	Voltage	Voltage	Voltage
1	5.7V	5.7V	0V	1.1V
2	5.1V	5.6V	0V	0V
3	0V	0V	0V	4.9V
4	2.1V	5V	13mV	5V

(1,2 Pin Only Primary Ground)

	IC561	IC571	IC581	IC754
Pin	Voltage	Voltage	Voltage	Voltage
1	5V	5V	5V	5V
2	3.8V	4.3V	3.9V	4.4V
3	0V	0V	9.6V	0V
4	0.64V	7.1V	9.7V	14V

(3,4 Pin Only Primary Ground)

	IC755	IC841
Pin	Voltage	Voltage
1	5.7V	14.1V
2	3.2V	7V
3	0V	3.7mV
4	1.2V	13.9V
5	3.6V	0V
6		0V
7		14.4V
8		NO

(Primary Ground)

IC501					
Pin	Voltage	Pin	Voltage	Pin	Voltage
1	Pulse	23	Pulse	45	NC
2	Pulse	24	NC	46	NC
3	Pulse	25	Pulse	47	NC
4	Pulse	26	NC	48	NC
5	Pulse	27	NC	49	NC
6	Pulse	28	NC	50	NC
7	Pulse	29	NC	51	NC
8	Pulse	30	NC	52	NC
9	Pulse	31	NC	53	NC
10	Pulse	32	NC	54	NC
11	Pulse	33	NC	55	Pulse
12	Pulse	34	NC	56	5V
13	Pulse	35	NC	57	4.9V
14	Pulse	36	NC	58	5V
15	Pulse	37	NC	59	0V
16	Pulse	38	NC	60	Pulse
17	Pulse	39	NC	61	Pulse
18	Pulse	40	NC	62	Pulse
19	Pulse	41	NC	63	Pulse
20	Pulse	42	NC	64	Pulse
21	Pulse	43	NC		
22	Pulse	44	NC		

Pin	Voltage
1	0V
2	NC
3	0V
4	NC
5	0V
6	NC
7	0V
8	Pulse
9	Pulse
10	Pulse
11	Pulse
12	Pulse
13	Pulse
14	5V

Pin	Voltage
1	0V
2	5.2V
3	5.7V
4	0V
5	5.6V
6	0V
7	NC
8	0V
9	NC
10	0V
11	5.2V
12	0V
13	5.7V
14	5.2V
15	0V
16	5.7V

(Primary Ground)

Pin	Voltage
1	0
2	0.5
3	0.5
4	0.5
5	0.5
6	0.5
7	0.5
8	0.5
9	0.5
10	5
11	5
12	0.5
13	0.5
14	No
15	Puls
16	Puls
17	Puls
18	0.5
19	0.5
20	0

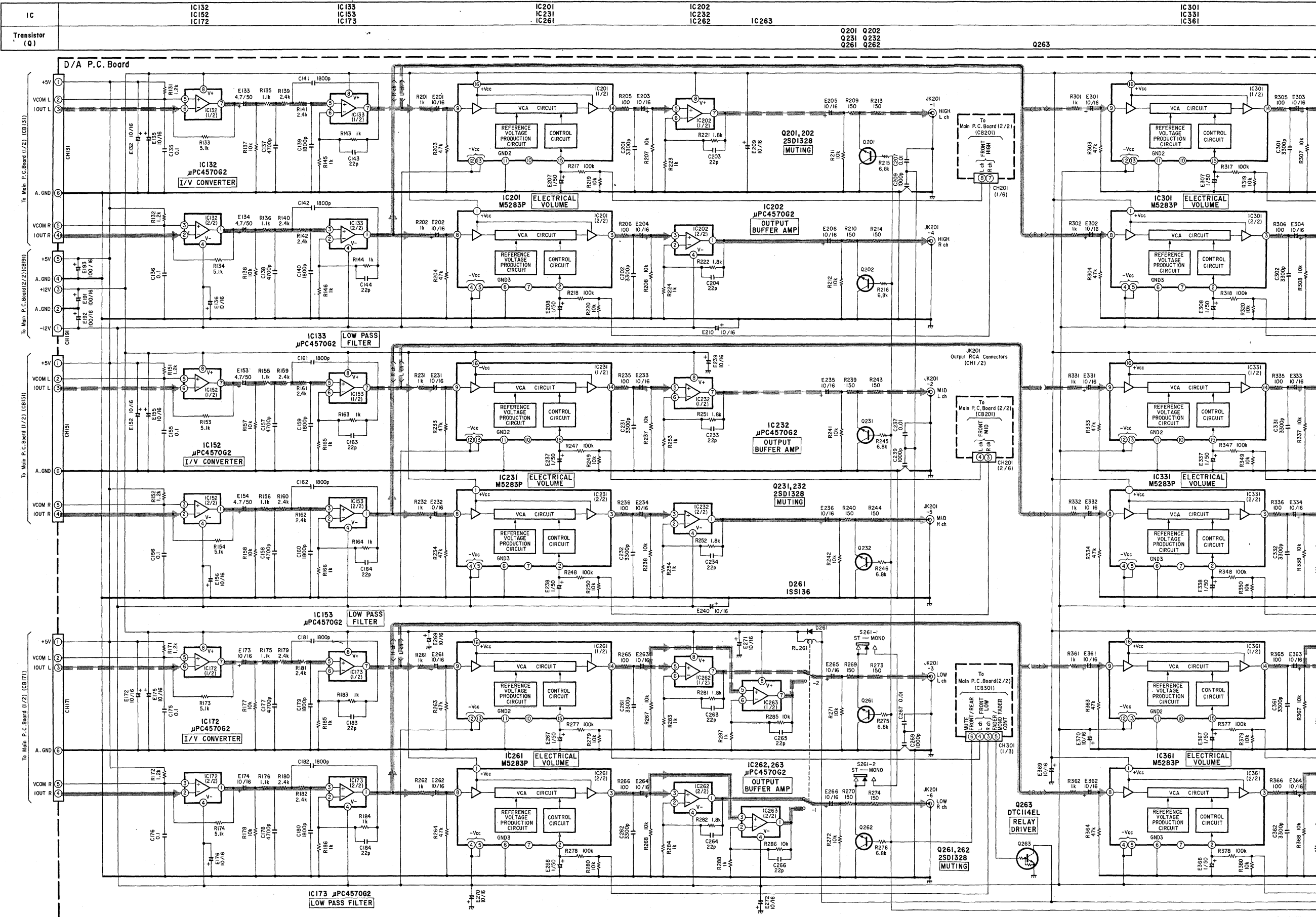
IC901					
Pin	Voltage	Pin	Voltage	Pin	Voltage
1	NC	23	NC	45	Pulse
2	4.9V	24	NC	46	Pulse
3	4.9V	25	4.9V	47	Pulse
4	24.8mV	26	8.3mV	48	5V
5	24.5mV	27	0V	49	5V
6	NC	28	0V	50	0V
7	NC	29	0V	51	5V
8	NC	30	0V	52	0V
9	NC	31	8.8mV	53	4.9V
10	4.9v	32	0V	54	10.8mV
11	9mV	33	0V	55	10.8mV
12	4.9V	34	9mV	56	4.9V
13	4.9V	35	NC	57	4.9V
14	4.9V	36	0.35V	58	4.9V
15	Pulse	37	4.6V	59	10.2mV
16	Pulse	38	5V	60	4.9V
17	0V	39	5V	61	4.9V
18	4.9V	40	0V	62	NC
19	5V	41	NC	63	NC
20	4.9V	42	4.9V	64	NC
21	4.9V	43	4.9V		
22	NC	44	4.9V		

Ref. No.	E	C	B
Q561	0V	98.2mV	1.2V
Q571	0V	4.4V	10.3mV
Q581	0V	52mV	3.5V
Q754	0V	4.4V	6.8mV
Q841	4.3V	4.2V	13mV
Q842	0V	13mV	4.9V
Q901	0V	0.4V	6.9V
Q902	0V	0.4V	0.9V
Q903	0V	26mV	4.9V
Q904	5V	5V	26mV

Ref. No.	E	C	B
Q501	0V	14V	2.9mV
Q502	14V	3.3mV	14V
Q503	0V	13.3V	2.9mV
Q504	12.6V	14V	13.3V
Q562	14.1V	14V	13.4V
Q563	8.9V	14.1V	9.5V
Q572	0V	25.4mV	7.1V
Q573	8.9V	8.8V	25.4mV
Q574	8.9V	8.9V	7.1V
Q751	5.7V	14.1V	6.3V
Q752	5.7V	-30.3mV	5.7V
Q753	0V	5.6V	-30.3mV
Q755	0V	5.1V	-30.3mV
Q756	0V	16.9mV	3.6V
Q757	5.7V	5.6V	16.9mV
Q801	14.1V	14V	13.4V
Q802	0V	135.4mV	3.2V
Q803	Pulse	Pulse	Pulse
Q804	0V	Pulse	Pulse
Q905	0V	40.5mV	7.9V

(Primary Ground)

Schematic Diagram (3/3)



A

B

C

D

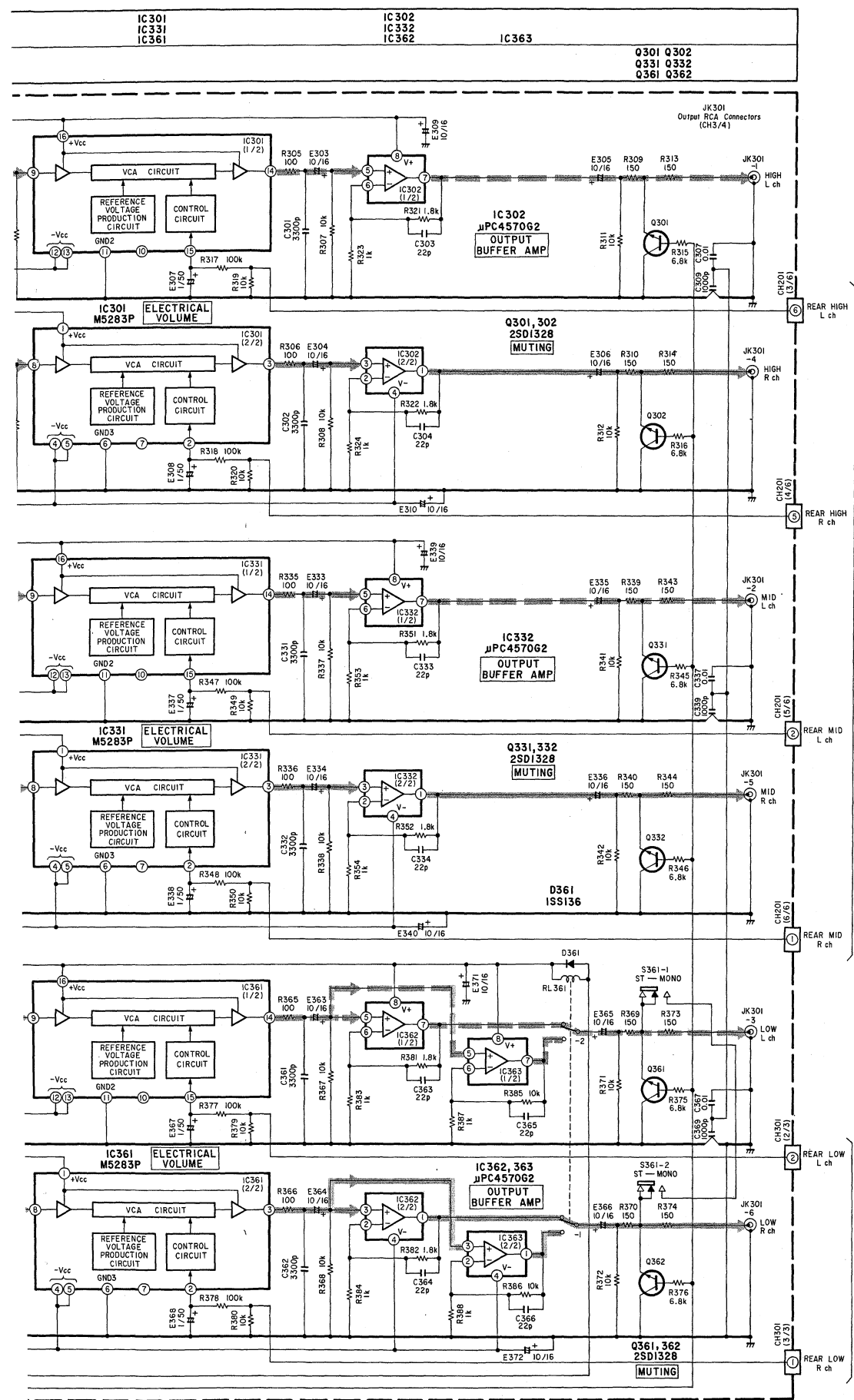
E

F

G

H

NOTE:
1. All resistance values are in ohms. K= 1,000 M= 1,000,000
2. All capacitance values are in microfarads. P= 1/1,000,000



Pin	IC132	IC133	IC152	IC153	IC172	IC173	IC202
1	6.5V	3.8mV	6.6mV	3.2mV	6.6V	3.8mV	3.6mV
2	3.6V	2.6mV	3.6V	2mV	3.6V	2.7mV	2.2mV
3	3.5V	2.3mV	3.6V	1.8mV	3.6V	2.4mV	2mV
4	-12.2V	-12.2V	-12.2V	-12.2V	-12.2V	-12.2V	-12.2V
5	3.5V	2.2mV	3.5V	1.7mV	3.5V	2.3mV	2mV
6	3.5V	2.2mV	3.6V	1.8mV	3.6V	2.5mV	2.4mV
7	6.5V	3.1mV	6.6V	2.8mV	6.6V	3.5mV	4.1mV
8	12.7V	12.7V	12.7V	12.7V	12.7V	12.7V	12.7V

Ref. No.	E	C	B
Q201	1.5mV	0V	0.64V
Q202	1.5mV	0V	0.64V
Q231	1.8mV	0V	0.64V
Q232	1.8mV	0V	0.64V
Q261	1.8mV	0V	0.64V
Q262	1.8mV	0V	0.64V
Q263	0V	12.7V	0.64V
Q301	1.1mV	0V	0.64V
Q302	1.1mV	0V	0.65V
Q331	1.3mV	0V	0.65V
Q332	1.3mV	0V	0.64V
Q361	1.7mV	0V	0.65V
Q362	1.7mV	0V	0.64V

Pin	IC232	IC262	IC263	IC302	IC332	IC362	IC363
1	4.3mV	4mV	13.3mV	3mV	2.3mV	5mV	15.7mV
2	2.7mV	2.6mV	2.8mV	1.8mV	1.6mV	2.9mV	3mV
3	2.3mV	2.8mV	2.8mV	1.6mV	1.7mV	2.7mV	2.7mV
4	-12.2V	-12.2V	-12.2V	-12.2V	-12.2V	-12.2V	-12.2V
5	2.3mV	2.8mV	2.8mV	1.6mV	1.7mV	2.7mV	2.7mV
6	2.3mV	2.8mV	2.9mV	1.8mV	1.8mV	2.9mV	2.9mV
7	3.4mV	4.6mV	13.4mV	3.2mV	2.9mV	5mV	15.3mV
8	12.7V	12.7V	12.7V	12.7V	12.7V	12.7V	12.7V

Pin	IC201	IC231	IC261	IC301	IC331	IC361
1	12.7V	12.7V	12.7V	12.7V	12.7V	12.7V
2	0.5V	0.5V	0.5V	0.5V	0.5V	0.5V
3	-63mV	-74mV	3mV	-105mV	-84mV	6mV
4	-12.2V	-12.2V	-12.2V	-12.2V	-12.2V	-12.2V
5	-12.2V	-12.2V	-12.2V	-12.2V	-12.2V	-12.2V
6	0V	0V	0V	0V	0V	0V
7	NC	NC	NC	NC	NC	NC
8	0V	0V	0V	0V	0V	0V
9	0V	0V	0V	0V	0V	0V
10	NC	NC	NC	NC	NC	NC
11	0V	0V	0V	0V	0V	0V
12	-12.2V	-12.2V	-12.2V	-12.2V	-12.2V	-12.2V
13	-12.2V	-12.2V	-12.2V	-12.2V	-12.2V	-12.2V
14	-65mV	-74mV	2.1mV	-93mV	-74mV	-1.7mV
15	0.5V	0.5V	0.5V	0.5V	0.5V	0.5V
16	12.7V	12.7V	12.7V	12.7V	12.7V	12.7V

Measuring Condition
1. Power Supply Voltage : DC14.4V
2. Measuring Meter : Digital Voltmeter
3. Measuring Point Reference : Secondary Ground
4. Measuring Condition : No Signal Input

Electrical Parts List

Resistor : Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.

Capacitor : μ F = microfarads, pF = picofarads

Abbreviations		
RES. = Resistor	CAP. = Capacitor	
C.F. = Carbon Film	ELY. = Electrolytic	
M.F. = Metal Film	CER. = Ceramic	
M.O. = Metal Oxide Film	MYL. = Mylar	
M.P. = Metal Plate	TAN. = Tantalum	
TR. = Transistor	POLY. = Polystyrol	
TRANS. = Transformer	PP. = Polypropylene	
CP. = Chip	PLT. = Polyethylene	
	PF. = Polyester Film	

Symbol No.	Part No.	Description
Main P. C. Board		
IC's		
IC101	51T83403F04	μPC4570G2
IC102	51T45093W01	AK5339P
IC103	51T80338F01	NJM7805FA
IC104	51T80339F01	NJM7905FA
IC131	51T35409W02	PCM67U
IC151	51T35409W02	PCM67U
IC171	51T35409W02	PCM67U
IC551	51T96486F02	HD74HC14FP
IC561	51T35529W01	PS2501-1
IC571	51T35529W01	PS2501-1
IC581	51T35529W01	PS2501-1
IC601	51T80475F01	TC74HCU04AP
IC603	51T91084F02	YM3623B
IC701	51T45098W01	LC83010N
IC703	51T45094W01	MT4067P
IC721	51T45113W02	SM5840ES
IC722	51T45113W02	SM5840ES
IC723	51T45113W02	SM5840ES
IC724	51T93532F07	TC4S66F
IC725	51T93532F07	TC4S66F
IC751	51T90267F02	μPD4538BG
IC752	51T35529W01	PS2501-1
IC753	51T35529W01	PS2501-1
IC754	51T35529W01	PS2501-1
IC755	51T94896F02	M51957A
IC821	51T80338F01	NJM7805FA
IC822	51T80338F01	NJM7805FA
IC841	51T35423W01	35423W01
IC842	51T35529W01	PS2501-1
IC901	51T45540W06	45540W06
IC902	51T94896F02	M51957A
IC903	51T45208W03	MB88346B
IC904	51T80338F01	NJM7805FA
IC906	51T35529W01	PS2501-1

Symbol No.	Part No.	Description
Transistors		
Q101	48T94606F06	CP., DTC114EU
Q561	48T94606F02	CP., DTC114YU
Q562	48T35055W01	2SA1443
Q563	48T69176F01	2SC3421
Q571	48T94606F06	CP., DTC114EU
Q572	48T82763F02	DTC114EL
Q573	48T82762F21	DTB143EL
Q574	48T82762F21	DTB143EL
Q581	48T94606F06	CP., DTC114EU
Q601	48T94606F06	CP., DTC114EU
Q751	48T69176F01	2SC3421
Q752	48T94606F56	CP., DTA114EU
Q753	48T94606F01	CP., DTC144EU
Q754	48T63417F01	CP., 2SC2412K
Q755	48T94606F03	CP., DTC124EU
Q756	48T94606F01	CP., DTC144EU
Q757	48T94606F56	CP., DTA114EU
Q801	48T35055W01	2SA1443
Q802	48T82763F06	DTC114YL
Q803	48S40832F03	2SC1318NC
Q804	48T35056W01	2SC3693
Q841	48T94606F56	CP., DTA114EU
Q842	48T94606F06	CP., DTC114EU
Q901	48T94606F06	CP., DTC114EU
Q902	48T81552F01	CP., 2SD1383K
Q903	48T94606F01	CP., DTC144EU
Q904	48T94606F56	CP., DTA114EU
Q905	48T82763F02	DTC114EL

Diodes		
D101	48T68828F01	1SS133
D102	48T68828F01	1SS133
D103	48T68828F01	1SS133
D104	48T68828F01	1SS133
D601	48T68828F01	1SS133
D602	48T68828F01	1SS133
D701	48T68828F01	1SS133
D702	48T68828F01	1SS133
D703	48T68828F01	1SS133
D704	48T68828F01	1SS133
D705	48T68828F01	1SS133
D706	48T68828F01	1SS133
D707	48T68828F01	1SS133
D708	48T68828F01	1SS133

Symbol No.	Part No.	Description
D751	48T68828F01	1SS133
D752	48T68828F01	1SS133
D753	48T68828F01	1SS133
D802	48T84052F01	11ES2
D803	48T80984F01	11DF2
D804	48T70933F01	1SS136
D821	48T80984F01	11DF2
D822	48T80984F01	11DF2
D823	48T80984F01	11DF2
D841	48T68828F01	1SS133
D901	48T68828F01	1SS133
D903	48T68828F01	1SS133
D904	48T68828F01	1SS133
D905	48T68828F01	1SS133
D906	48T70933F01	1SS136
D907	48T70933F01	1SS136
D908	48T70933F01	1SS136
D909	48T70933F01	1SS136
D910	48T70933F01	1SS136
D911	48T68079F04	30D4FE
D912	48T84052F01	11ES2
D913	48T84052F01	11ES2
D914	48T84052F01	11ES2
ZD551	48T83128F01	Zener, HZS6A1L
ZD552	48T83128F01	Zener, HZS6A1L
ZD553	48T83128F01	Zener, HZS6A1L
ZD561	48T90517F44	Zener, HZS10NB1
ZD751	48T83128F09	Zener, HZS6C3L
ZD801	40T90517F77	Zener, HZS27NB2
ZD902	48T83128F05	Zener, HZS6B2L
Crystals		
X601	91T84727F02	16.9344MHz
X901	91T84064F02	7.373MHz
Coils / Transformer		
L601	24T50508F30	Inductor, 47 μ H
L602	24T50508F30	Inductor, 47 μ H
L801	25T40455U10	Choke, Filter
L802	25T35596W01	Choke
L804	25T45075W02	TRANS., D / D
L821	24T60743F03	RC885, 150 μ H
L822	24T60743F03	RC885, 150 μ H
L823	24T60743F03	RC885, 150 μ H

Symbol No.	Part No.	Description
Relay		
RL901	80T35226W01	EA2-12
Switches		
S901	40T94668F02	SSSF12 (SUB W. FAD / NON)
S902	40T94668F02	SSSF12 (MODE 3WY / 2WY)
S903	40T94668F02	SSSF12 (CONFIG. M / S)
Capacitors		
C101	08S65128F19	CP., 22pF
E101	23T25149W09	ELY., 10 μ F / 16V
C102	08S65128F19	CP., 22pF
E102	23T25149W09	ELY., 10 μ F / 16V
C103	08T90316F29	TF, 0.1 μ F
C104	08T90316F29	TF, 0.1 μ F
C105	08T90316F29	TF, 0.1 μ F
C106	08T90316F29	TF, 0.1 μ F
C107	08T90316F29	TF, 0.1 μ F
E107	23T00181L18	ELY., 220 μ F / 16V
C108	08T90316F29	TF, 0.1 μ F
E108	23T00181L18	ELY., 220 μ F / 16V
C109	08T90316F10	TF, 2700pF
E109	23T25149W09	ELY., 10 μ F / 16V
C110	08T90316F10	TF, 2700pF
E110	23T25149W09	ELY., 10 μ F / 16V
C111	08S53332F57	CP., 0.1 μ F
E111	23T74436F31	TAN., 6.8 μ F / 16V
C112	08S53332F57	CP., 0.1 μ F
E112	23T25149W09	ELY., 10 μ F / 16V
C113	08S53332F57	CP., 0.1 μ F
C114	08S53332F57	CP., 0.1 μ F
C115	08S53332F57	CP., 0.1 μ F
C120	08T25620W01	CER., 0.47 μ F
C121	08T55044W05	DS306-55B, 270pF
E131	23S61523F32	ELY., 4.7 μ F / 50V
C132	08T90316F37	TF, 0.47 μ F
C133	08T90316F29	TF, 0.1 μ F
E151	23S61523F32	ELY., 4.7 μ F / 50V
C152	08T90316F37	TF, 0.47 μ F
C153	08T90316F29	TF, 0.1 μ F
E171	23S61523F32	ELY., 4.7 μ F / 50V
C172	08T90316F37	TF, 0.47 μ F
C173	08T90316F29	TF, 0.1 μ F

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
C551	08S53332F57	CP., 0.1 μ F	E825	23T00181L18	ELY., 220 μ F / 16V
C552	08S65128F19	CP., 22pF	E826	23T00181L18	ELY., 220 μ F / 16V
C553	08S53332F47	CP., 0.01 μ F	E827	23T00181L18	ELY., 220 μ F / 16V
E561	23S61524F31	ELY., 0.47 μ F / 50V	E828	23T00181L18	ELY., 220 μ F / 16V
E562	23S61524F13	ELY., 10 μ F / 16V	E841	23S82482F02	ELY., 100 μ F / 16V
E563	23T95135F67	ELY., 470 μ F / 16V	E842	23S61523F12	ELY., 10 μ F / 16V
C601	08T90316F29	TF, 0.1 μ F	E843	23S82482F02	ELY., 100 μ F / 16V
E601	23S82482F02	ELY., 100 μ F / 16V	E844	23T00134L20	ELY., 470 μ F / 10V
C602	08T25620W01	CER., 0.47 μ F	C901	08T25620W01	CER., 0.47 μ F
C604	08T25620W01	CER., 0.47 μ F	E901	23T00134L21	ELY., 1000 μ F / 10V
C605	08S65128F65	CP., 4700pF	C902	08S65128F65	CP., 4700pF
C606	08S65128F12	CP., 10pF	C903	08T90316F35	TF, 0.33 μ F
C607	08S65128F12	CP., 10pF	E903	23S61524F32	ELY., 1 μ F / 50V
C608	08T90316F25	TF, 0.047 μ F	C904	08T90316F17	TF, 0.01 μ F
C609	08S65128F35	CP., 100pF	C906	08T90316F29	TF, 0.1 μ F
C701	08T25620W01	CER., 0.47 μ F	C907	08T90316F37	TF, 0.47 μ F
C703	08T25620W01	CER., 0.47 μ F	E909	23S61523F12	ELY., 10 μ F / 16V
C704	08S65128F51	CP., 470pF	E910	23S61523F12	ELY., 10 μ F / 16V
C705	08S65128F51	CP., 470pF	Resistors (All resistors are chip 1/10W $\pm$ 5% unless otherwise noted.)		
C706	08T90316F19	TF, 0.015 μ F			
C707	08S65128F12	CP., 10pF	R101	06S64995F53	1K ohm
C721	08T25620W01	CER., 0.47 μ F	R102	06S64995F53	1K ohm
E721	23S82482F02	ELY., 100 μ F / 16V	R103	06S64995F53	1K ohm
C722	08T25620W01	CER., 0.47 μ F	R104	06S64995F53	1K ohm
C723	08T25620W01	CER., 0.47 μ F	R105	06S64995F77	10K ohm
C724	08S53332F35	CP., 1000pF	R106	06S64995F77	10K ohm
C725	08S53332F35	CP., 1000pF	R107	06S64995F61	2.2K ohm
C726	08S53332F35	CP., 1000pF	R108	06S64995F61	2.2K ohm
C751	08S65128F49	CP., 390pF	R109	06S64995F49	680 ohm
E751	23S61524F13	ELY., 10 μ F / 16V	R110	06S64995F49	680 ohm
C752	08S65128F51	CP., 470pF	R111	06S64995F05	10 ohm
E752	23S61524F13	ELY., 10 μ F / 16V	R112	06S64996F02	100K ohm
C753	08T90316F25	TF, 0.047 μ F	R113	06S64995F77	10K ohm
C754	08S65128F35	CP., 100pF	R551	06S53330F46	510 ohm 1/8W
C755	08T90316F25	TF, 0.047 μ F	R552	06S53330F46	510 ohm 1/8W
C756	08T90316F17	TF, 0.01 μ F	R553	06S53330F46	510 ohm 1/8W
C801	08T90316F17	TF, 0.01 μ F	R561	06S53330F69	4.7K ohm 1/8W
E801	23T00136L34	ELY., 2200 μ F / 16V	R562	06S53330F58	1.6K ohm 1/8W
C802	08T90316F21	TF, 0.022 μ F	R563	06S53330F49	680 ohm 1/8W
E802	23S61524F13	ELY., 10 μ F / 16V	R571	06S53330F69	4.7K ohm 1/8W
C803	08T90316F17	TF, 0.01 μ F	R572	06S53330F49	680 ohm 1/8W
E803	23S61524F13	ELY., 10 μ F / 16V	R573	06S53330F69	4.7K ohm 1/8W
E804	23T95135F67	ELY., 470 μ F / 16V	R574	06S81094F29	M.F., 33 ohm 1/2W
C805	08T90316F22	TF, 0.027 μ F	R575	06S81094F29	M.F., 33 ohm 1/2W
E805	23T95136F82	ELY., 47 μ F / 63V	R581	06S53330F69	4.7K ohm 1/8W
C806	08T90316F37	TF, 0.47 μ F	R582	06S53330F49	680 ohm 1/8W
C821	08T90316F29	TF, 0.1 μ F	R583	06S53330F69	4.7K ohm 1/8W
E821	23T00181L18	ELY., 220 μ F / 16V	R602	06S64995F33	150 ohm
C822	08T90316F29	TF, 0.1 μ F	R603	06S64996F26	1M ohm
E822	23T00181L18	ELY., 220 μ F / 16V			
E823	23T00181L18	ELY., 220 μ F / 16V			
E824	23T00181L18	ELY., 220 μ F / 16V			

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
R604	06S64995F97	68K ohm	D/A P. C. Board		
R721	06S64995F77	10K ohm	IC's		
R722	06S64995F77	10K ohm	IC132	51T83403F04	μ PC4570G2
R753	06S53330F49	680 ohm 1/8W	IC133	51T83403F04	μ PC4570G2
R754	06S64995F77	10K ohm	IC152	51T83403F04	μ PC4570G2
R755	06S64995F83	18K ohm	IC153	51T83403F04	μ PC4570G2
R756	06S53330F49	680 ohm 1/8W	IC172	51T83403F04	μ PC4570G2
R757	06S53330F55	1.2K ohm 1/8W	IC173	51T83403F04	μ PC4570G2
R758	06S64996F26	1M ohm	IC201	51T35478W01	M5283P
R759	06S64996F18	470K ohm	IC202	51T83403F04	μ PC4570G2
R760	06S64996F26	1M ohm	IC231	51T35478W01	M5283P
R761	06S53330F50	750 ohm 1/8W	IC232	51T83403F04	μ PC4570G2
R762	06S64995F77	10K ohm	IC261	51T35478W01	M5283P
R764	06S64995F93	47K ohm	IC262	51T83403F04	μ PC4570G2
R765	06S53330F49	680 ohm 1/8W	IC263	51T83403F04	μ PC4570G2
R806	06T92264F41	M.F., 470 ohm 2W	IC301	51T35478W01	M5283P
R841	06S81094F70	M.F., 1.6K ohm 1/2W	IC302	51T83403F04	μ PC4570G2
R901	06S64996F02	100K ohm	IC331	51T35478W01	M5283P
R902	06S64996F02	100K ohm	IC332	51T83403F04	μ PC4570G2
R903	06S64996F02	100K ohm	IC361	51T35478W01	M5283P
R904	06S64996F02	100K ohm	IC362	51T83403F04	μ PC4570G2
R905	06S64996F02	100K ohm	IC363	51T83403F04	μ PC4570G2
R906	06S64996F26	1M ohm	Transistors		
R908	06S64996F02	100K ohm	Q201	48T63788F04	CP., 2SD1328
R909	06S64996F02	100K ohm	Q202	48T63788F04	CP., 2SD1328
R910	06S64996F02	100K ohm	Q231	48T63788F04	CP., 2SD1328
R911	06S64996F02	100K ohm	Q232	48T63788F04	CP., 2SD1328
R912	06S64995F93	47K ohm	Q261	48T63788F04	CP., 2SD1328
R913	06S64996F18	470K ohm	Q262	48T63788F04	CP., 2SD1328
R914	06S64995F65	3.3K ohm	Q263	48T82763F02	DTC114EL
R915	06S64995F80	13K ohm	Q301	48T63788F04	CP., 2SD1328
R916	06S64995F77	10K ohm	Q302	48T63788F04	CP., 2SD1328
R917	06S53330F53	1K ohm 1/8W	Q331	48T63788F04	CP., 2SD1328
R918	06S64996F02	100K ohm	Q332	48T63788F04	CP., 2SD1328
R919	06S64995F78	11K ohm	Q361	48T63788F04	CP., 2SD1328
R920	06S64995F78	11K ohm	Q362	48T63788F04	CP., 2SD1328
R921	06S64996F02	100K ohm	Diodes		
			D261	48T70933F01	1SS136
			D361	48T70933F01	1SS136

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
Relaies					
RL261	80T35226W01	EA2-12	C179	08T90316F08	PF., 1800pF
RL361	80T35226W01	EA2-12	C180	08T90316F08	PF., 1800pF
			C181	08T90316F08	PF., 1800pF
			C182	08T90316F08	PF., 1800pF
			C183	08S65128F19	CP., 22pF
Switches					
S261	40T94668F02	SSSF12 (ST/MONO)	C184	08S65128F19	CP., 22pF
S361	40T94668F02	SSSF12 (ST/MONO)	E191	23T00149L25	ELY., 100 μ F / 16V
			E192	23T00149L25	ELY., 100 μ F / 16V
			E193	23T00149L25	ELY., 100 μ F / 16V
			C201	08T90316F11	PF., 3300pF
Capacitors					
E132	23T25149W09	ELY., 10 μ F / 16V	E201	23T25149W09	ELY., 10 μ F / 16V
E133	23T25149W08	ELY., 4.7 μ F / 50V	C202	08T90316F11	PF., 3300pF
E134	23T25149W08	ELY., 4.7 μ F / 50V	E202	23T25149W09	ELY., 10 μ F / 16V
C135	08T90316F29	TF, 0.1 μ F	C203	08S65128F19	CP., 22pF
E135	23T25149W09	ELY., 10 μ F / 16V	E203	23T25149W09	ELY., 10 μ F / 16V
C136	08T90316F29	TF, 0.1 μ F	C204	08S65128F19	CP., 22pF
E136	23T25149W09	ELY., 10 μ F / 16V	E204	23T25149W09	ELY., 10 μ F / 16V
C137	08T90316F13	PF., 4700pF	E205	23T25149W09	ELY., 10 μ F / 16V
C138	08T90316F13	PF., 4700pF	E206	23T25149W09	ELY., 10 μ F / 16V
C139	08T90316F08	PF., 1800pF	C207	08T25927W01	CER., 0.01 μ F
C140	08T90316F08	PF., 1800pF	E207	23T25149W05	ELY., 1 μ F / 50V
C141	08T90316F08	PF., 1800pF	E208	23T25149W05	ELY., 1 μ F / 50V
C142	08T90316F08	PF., 1800pF	C209	08T55044W06	DS306-55B, 1000pF
C143	08S65128F19	CP., 22pF	E209	23T25149W09	ELY., 10 μ F / 16V
C144	08S65128F19	CP., 22pF	E210	23T25149W09	ELY., 10 μ F / 16V
E152	23T25149W09	ELY., 10 μ F / 16V	C231	08T90316F11	PF., 3300pF
E153	23T25149W08	ELY., 4.7 μ F / 50V	E231	23T25149W09	ELY., 10 μ F / 16V
E154	23T25149W08	ELY., 4.7 μ F / 50V	C232	08T90316F11	PF., 3300pF
C155	08T90316F29	TF, 0.1 μ F	E232	23T25149W09	ELY., 10 μ F / 16V
E155	23T25149W09	ELY., 10 μ F / 16V	C233	08S65128F19	CP., 22pF
C156	08T90316F29	TF, 0.1 μ F	E233	23T25149W09	ELY., 10 μ F / 16V
E156	23T25149W09	ELY., 10 μ F / 16V	C234	08S65128F19	CP., 22pF
C157	08T90316F13	PF., 4700pF	E234	23T25149W09	ELY., 10 μ F / 16V
C158	08T90316F13	PF., 4700pF	E235	23T25149W09	ELY., 10 μ F / 16V
C159	08T90316F08	PF., 1800pF	E236	23T25149W09	ELY., 10 μ F / 16V
C160	08T90316F08	PF., 1800pF	C237	08T25927W01	CER., 0.01 μ F
C161	08T90316F08	PF., 1800pF	E237	23T25149W05	ELY., 1 μ F / 50V
C162	08T90316F08	PF., 1800pF	E238	23T25149W05	ELY., 1 μ F / 50V
C163	08S65128F19	CP., 22pF	C239	08T55044W06	DS306-55B, 1000pF
C164	08S65128F19	CP., 22pF	E239	23T25149W09	ELY., 10 μ F / 16V
E172	23T25149W09	ELY., 10 μ F / 16V	E240	23T25149W09	ELY., 10 μ F / 16V
E173	23T25149W09	ELY., 10 μ F / 16V	C261	08T90316F11	PF., 3300pF
E174	23T25149W09	ELY., 10 μ F / 16V	E261	23T25149W09	ELY., 10 μ F / 16V
C175	08T90316F29	TF, 0.1 μ F	C262	08T90316F11	PF., 3300pF
E175	23T25149W09	ELY., 10 μ F / 16V	E262	23T25149W09	ELY., 10 μ F / 16V
C176	08T90316F29	TF, 0.1 μ F	C263	08S65128F19	CP., 22pF
E176	23T25149W09	ELY., 10 μ F / 16V	E263	23T25149W09	ELY., 10 μ F / 16V
C177	08T90316F13	PF., 4700pF	C264	08S65128F19	CP., 22pF
C178	08T90316F13	PF., 4700pF	E264	23T25149W09	ELY., 10 μ F / 16V
			C265	08S65128F19	CP., 22pF
			E265	23T25149W09	ELY., 10 μ F / 16V

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
C266	08S65128F19	CP., 22pF	C366	08S65128F19	CP., 22pF
E266	23T25149W09	ELY., 10 μ F / 16V	E366	23T25149W09	ELY., 10 μ F / 16V
C267	08T25927W01	CER., 0.01 μ F	C367	08T25927W01	CER., 0.01 μ F
E267	23T25149W05	ELY., 1 μ F / 50V	E367	23T25149W05	ELY., 1 μ F / 50V
E268	23T25149W05	ELY., 1 μ F / 50V	E368	23T25149W05	ELY., 1 μ F / 50V
C269	08T55044W06	DS306-55B, 1000pF	C369	08T55044W06	DS306-55B, 1000pF
E269	23T25149W09	ELY., 10 μ F / 16V	E369	23T25149W09	ELY., 10 μ F / 16V
E270	23T25149W09	ELY., 10 μ F / 16V	E370	23T25149W09	ELY., 10 μ F / 16V
E271	23T25149W09	ELY., 10 μ F / 16V	E371	23T25149W09	ELY., 10 μ F / 16V
E272	23T25149W09	ELY., 10 μ F / 16V	E372	23T25149W09	ELY., 10 μ F / 16V
C301	08T90316F11	PF., 3300pF	Resistors (All resistors are chip 1/10W $\pm$ 5% unless otherwise noted.)		
E301	23T25149W09	ELY., 10 μ F / 16V			
C302	08T90316F11	PF., 3300pF	R131	06S64995F55	1.2K ohm
E302	23T25149W09	ELY., 10 μ F / 16V	R132	06S64995F55	1.2K ohm
C303	08S65128F19	CP., 22pF	R133	06S64995F70	5.1K ohm
E303	23T25149W09	ELY., 10 μ F / 16V	R134	06S64995F70	5.1K ohm
C304	08S65128F19	CP., 22pF	R135	06S64995F54	1.1K ohm
E304	23T25149W09	ELY., 10 μ F / 16V	R136	06S64995F54	1.1K ohm
E305	23T25149W09	ELY., 10 μ F / 16V	R137	06S64995F77	10K ohm
E306	23T25149W09	ELY., 10 μ F / 16V	R138	06S64995F77	10K ohm
C307	08T25927W01	CER., 0.01 μ F	R139	06S64995F62	2.4K ohm
E307	23T25149W05	ELY., 1 μ F / 50V	R140	06S64995F62	2.4K ohm
E308	23T25149W05	ELY., 1 μ F / 50V	R141	06S64995F62	2.4K ohm
C309	08T55044W06	DS306-55B, 1000pF	R142	06S64995F62	2.4K ohm
E309	23T25149W09	ELY., 10 μ F / 16V	R143	06S64995F53	1K ohm
E310	23T25149W09	ELY., 10 μ F / 16V	R144	06S64995F53	1K ohm
C331	08T90316F11	PF., 3300pF	R145	06S64995F53	1K ohm
E331	23T25149W09	ELY., 10 μ F / 16V	R146	06S64995F53	1K ohm
C332	08T90316F11	PF., 3300pF	R151	06S64995F55	1.2K ohm
E332	23T25149W09	ELY., 10 μ F / 16V	R152	06S64995F55	1.2K ohm
C333	08S65128F19	CP., 22pF	R153	06S64995F70	5.1K ohm
E333	23T25149W09	ELY., 10 μ F / 16V	R154	06S64995F70	5.1K ohm
C334	08S65128F19	CP., 22pF	R155	06S64995F54	1.1K ohm
E334	23T25149W09	ELY., 10 μ F / 16V	R156	06S64995F54	1.1K ohm
E335	23T25149W09	ELY., 10 μ F / 16V	R157	06S64995F77	10K ohm
E336	23T25149W09	ELY., 10 μ F / 16V	R158	06S64995F77	10K ohm
C337	08T25927W01	CER., 0.01 μ F	R159	06S64995F62	2.4K ohm
E337	23T25149W05	ELY., 1 μ F / 50V	R160	06S64995F62	2.4K ohm
E338	23T25149W05	ELY., 1 μ F / 50V	R161	06S64995F62	2.4K ohm
C339	08T55044W06	DS306-55B, 1000pF	R162	06S64995F62	2.4K ohm
E339	23T25149W09	ELY., 10 μ F / 16V	R163	06S64995F53	1K ohm
E340	23T25149W09	ELY., 10 μ F / 16V	R164	06S64995F53	1K ohm
C361	08T90316F11	PF., 3300pF	R165	06S64995F53	1K ohm
E361	23T25149W09	ELY., 10 μ F / 16V	R166	06S64995F53	1K ohm
C362	08T90316F11	PF., 3300pF	R171	06S64995F55	1.2K ohm
E362	23T25149W09	ELY., 10 μ F / 16V	R172	06S64995F55	1.2K ohm
C363	08S65128F19	CP., 22pF	R173	06S64995F70	5.1K ohm
E363	23T25149W09	ELY., 10 μ F / 16V			
C364	08S65128F19	CP., 22pF			
E364	23T25149W09	ELY., 10 μ F / 16V			
C365	08S65128F19	CP., 22pF			
E365	23T25149W09	ELY., 10 μ F / 16V			

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
R174	06S64995F70	5.1K ohm	R246	06S64995F73	6.8K ohm
R175	06S64995F54	1.1K ohm	R247	06S64996F02	100K ohm
R176	06S64995F54	1.1K ohm	R248	06S64996F02	100K ohm
R177	06S64995F77	10K ohm	R249	06S64995F77	10K ohm
R178	06S64995F77	10K ohm	R250	06S64995F77	10K ohm
R179	06S64995F62	2.4K ohm	R251	06S64995F59	1.8K ohm
R180	06S64995F62	2.4K ohm	R252	06S64995F59	1.8K ohm
R181	06S64995F62	2.4K ohm	R253	06S64995F53	1K ohm
R182	06S64995F62	2.4K ohm	R254	06S64995F53	1K ohm
R183	06S64995F53	1K ohm	R261	06S64995F53	1K ohm
R184	06S64995F53	1K ohm	R262	06S64995F53	1K ohm
R185	06S64995F53	1K ohm	R263	06S64995F93	47K ohm
R186	06S64995F53	1K ohm	R264	06S64995F93	47K ohm
R201	06S64995F53	1K ohm	R265	06T70072F29	100 ohm 1/4W
R202	06S64995F53	1K ohm	R266	06T70072F29	100 ohm 1/4W
R203	06S64995F93	47K ohm	R267	06S64995F77	10K ohm
R204	06S64995F93	47K ohm	R268	06S64995F77	10K ohm
R205	06T70072F29	100 ohm 1/4W	R269	06S64995F33	150 ohm
R206	06T70072F29	100 ohm 1/4W	R270	06S64995F33	150 ohm
R207	06S64995F77	10K ohm	R271	06S64995F77	10K ohm
R208	06S64995F77	10K ohm	R272	06S64995F77	10K ohm
R209	06S64995F33	150 ohm	R273	06S64995F33	150 ohm
R210	06S64995F33	150 ohm	R274	06S64995F33	150 ohm
R211	06S64995F77	10K ohm	R275	06S64995F73	6.8K ohm
R212	06S64995F77	10K ohm	R276	06S64995F73	6.8K ohm
R213	06S64995F33	150 ohm	R277	06S64996F02	100K ohm
R214	06S64995F33	150 ohm	R278	06S64996F02	100K ohm
R215	06S64995F73	6.8K ohm	R279	06S64995F77	10K ohm
R216	06S64995F73	6.8K ohm	R280	06S64995F77	10K ohm
R217	06S64996F02	100K ohm	R281	06S64995F59	1.8K ohm
R218	06S64996F02	100K ohm	R282	06S64995F59	1.8K ohm
R219	06S64995F77	10K ohm	R283	06S64995F53	1K ohm
R220	06S64995F77	10K ohm	R284	06S64995F53	1K ohm
R221	06S64995F59	1.8K ohm	R285	06S64995F77	10K ohm
R222	06S64995F59	1.8K ohm	R286	06S64995F77	10K ohm
R223	06S64995F53	1K ohm	R287	06S64995F53	1K ohm
R224	06S64995F53	1K ohm	R288	06S64995F53	1K ohm
R231	06S64995F53	1K ohm	R301	06S64995F53	1K ohm
R232	06S64995F53	1K ohm	R302	06S64995F53	1K ohm
R233	06S64995F93	47K ohm	R303	06S64995F93	47K ohm
R234	06S64995F93	47K ohm	R304	06S64995F93	47K ohm
R235	06T70072F29	100 ohm 1/4W	R305	06T70072F29	100 ohm 1/4W
R236	06T70072F29	100 ohm 1/4W	R306	06T70072F29	100 ohm 1/4W
R237	06S64995F77	10K ohm	R307	06S64995F77	10K ohm
R238	06S64995F77	10K ohm	R308	06S64995F77	10K ohm
R239	06S64995F33	150 ohm	R309	06S64995F33	150 ohm
R240	06S64995F33	150 ohm	R310	06S64995F33	150 ohm
R241	06S64995F77	10K ohm	R311	06S64995F77	10K ohm
R242	06S64995F77	10K ohm	R312	06S64995F77	10K ohm
R243	06S64995F33	150 ohm	R313	06S64995F33	150 ohm
R244	06S64995F33	150 ohm	R314	06S64995F33	150 ohm
R245	06S64995F73	6.8K ohm	R315	06S64995F73	6.8K ohm

Symbol No.	Part No.	Description
R316	06S64995F73	6.8K ohm
R317	06S64996F02	100K ohm
R318	06S64996F02	100K ohm
R319	06S64995F77	10K ohm
R320	06S64995F77	10K ohm
R321	06S64995F59	1.8K ohm
R322	06S64995F59	1.8K ohm
R323	06S64995F53	1K ohm
R324	06S64995F53	1K ohm
R331	06S64995F53	1K ohm
R332	06S64995F53	1K ohm
R333	06S64995F93	47K ohm
R334	06S64995F93	47K ohm
R335	06T70072F29	100 ohm 1/4W
R336	06T70072F29	100 ohm 1/4W
R337	06S64995F77	10K ohm
R338	06S64995F77	10K ohm
R339	06S64995F33	150 ohm
R340	06S64995F33	150 ohm
R341	06S64995F77	10K ohm
R342	06S64995F77	10K ohm
R343	06S64995F33	150 ohm
R344	06S64995F33	150 ohm
R345	06S64995F73	6.8K ohm
R346	06S64995F73	6.8K ohm
R347	06S64996F02	100K ohm
R348	06S64996F02	100K ohm
R349	06S64995F77	10K ohm
R350	06S64995F77	10K ohm
R351	06S64995F59	1.8K ohm
R352	06S64995F59	1.8K ohm
R353	06S64995F53	1K ohm
R354	06S64995F53	1K ohm
R361	06S64995F53	1K ohm
R362	06S64995F53	1K ohm
R363	06S64995F93	47K ohm
R364	06S64995F93	47K ohm
R365	06T70072F29	100 ohm 1/4W
R366	06T70072F29	100 ohm 1/4W
R367	06S64995F77	10K ohm
R368	06S64995F77	10K ohm
R369	06S64995F33	150 ohm
R370	06S64995F33	150 ohm
R371	06S64995F77	10K ohm
R372	06S64995F77	10K ohm
R373	06S64995F33	150 ohm
R374	06S64995F33	150 ohm
R375	06S64995F73	6.8K ohm
R376	06S64995F73	6.8K ohm
R377	06S64996F02	100K ohm
R378	06S64996F02	100K ohm
R379	06S64995F77	10K ohm

Symbol No.	Part No.	Description
R380	06S64995F77	10K ohm
R381	06S64995F59	1.8K ohm
R382	06S64995F59	1.8K ohm
R383	06S64995F53	1K ohm
R384	06S64995F53	1K ohm
R385	06S64995F77	10K ohm
R386	06S64995F77	10K ohm
R387	06S64995F53	1K ohm
R388	06S64995F53	1K ohm

LCD P. C. Board		
IC		
IC501	51T83905F02	LC7582E
Transistors		
Q501	48T82763F02	DTC114EL
Q502	48T82762F02	DTA114EL
Q503	48T62963F02	DTC114
Q504	48T82758F03	2SC4038
LED's		
LD501	48T72180F01	AABG4307K (ORG / GRN)
LD502	48T72180F01	AABG4307K (ORG / GRN)
Lamp		
PL501	65T95083F01	6.7V-85mA
Switches		
S501	40T10876W12	Tact, SKHLAJ (MODE)
S502	40T10876W12	Tact, SKHLAJ (BAND UP)
S503	40T10876W12	Tact, SKHLAJ (ADJUSTMENT UP)
S504	40T10876W12	Tact, SKHLAJ (BAND DN)
S505	40T10876W12	Tact, SKHLAJ (ADJUSTMENT DN)

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
S506 S507	40T10876W12 40T10876W12	Tact, SKHLAJ (SAVE) Tact, SKHLAJ (SET-UP)			
Capacitors					
C501 E501 C502 C503	08S65128F55 23S61523F12 08S65128F19 08S65128F19	CP., 680pF ELY., 10 μ F / 16V CP., 22pF CP., 22pF			
Resistors (All resistors are chip 1/10W $\pm$ 5% unless otherwise noted.)					
R506 R510 R511 R512 R513	06S64995F93 06T92263F43 06T92263F43 06T92263F43 06T92263F43	47K ohm M.F., 560 ohm 1W M.F., 560 ohm 1W M.F., 560 ohm 1W M.F., 560 ohm 1W			
Miscellaneous					
D801 ET801 F801 IC611 IC612	48T81044F01 29T94650F01 65S58596F02 51T45265W01 51T45264W01	Diode, 10E2 Power Supply Terminal Fuse, Auto 5A (For Battery Line) IC, TORX193K IC, TOTX193K			
JK101 JK201 JK301 JK551 JK901	09T16384W05 09T81364F05 09T81364F05 09T45123W08 09T82054F01	Analog Bypass/ Input RCA Connector Output RCA Connectors (CH1 / 2) Output RCA Connectors (CH3 / 4) Remote Control Unit Connector Data Bus Connector (To Changer)			
JK902 LCD501	09T64358F01 65T45679W01	Data Bus Connector (To Head Unit) LCD Display, LU1838			

Cabinet Assembly Parts List

Note : No parts number on parts list are not Supplied.

Symbol No.	Index	Part No.	Description	Symbol No.	Index	Part No.	Description
4	1-F	33B50074W01	Name, Plate				
5	3-E	46A31467W03	Stad, Screw				
6	3-D	46A50078W01	Stad, Screw				
7		03A73194F05	Screw, Bind (M2.6×5)				
8		03S20041W25	Screw, Pan (M2.6×5)				
9	4-E	03S68555F02	Screw, Pan (M2×5.5)				
10		03S82672F22	Screw, Bind (M3×10)				
11		03S44205G62	Screw, Bind (M2.6×5)				
12	3-F	03S68555F16	Screw, Pan (M2.6×8)				
13		03S68555F33	Screw, Countersink (M2.6×8)				
14	3-D	04S40070G29	Washer, Flat (M2.9)				
16	2-F	26A31087W01	Shield, LCD				
17	2-F	15B31088W01	Cover, LCD				
18	2-F	61A31089W01	Lens, LCD				
19	2-F	26A31090W03	Reflector, Sheet				
21	3-D	07A20812W01	Bracket, P.C.Board				
24		03S40014G49	Screw, W/Washer (M3×8)				
27	2-C	26B50267W01	Shield, P.C.Board				
29	3-F	09T35194W01	Holder, Auto Fuse				
32	3-E	03S68555F08	Screw, Pan (M2×5)				
33	3-E	15A41852W01	Cover, Knob				
34	3-E	75B82162F10	Cushion, Sheet				
35	3-E	36A41851W01	Knob, Base				
36	3-E	36A13426W01	Lens, LED				
37	4-F	01T45678W01	Assy., Power Connector (4P)				

1



3

4

5

A

B — 47 —

C

D

E

— 48 — **F**

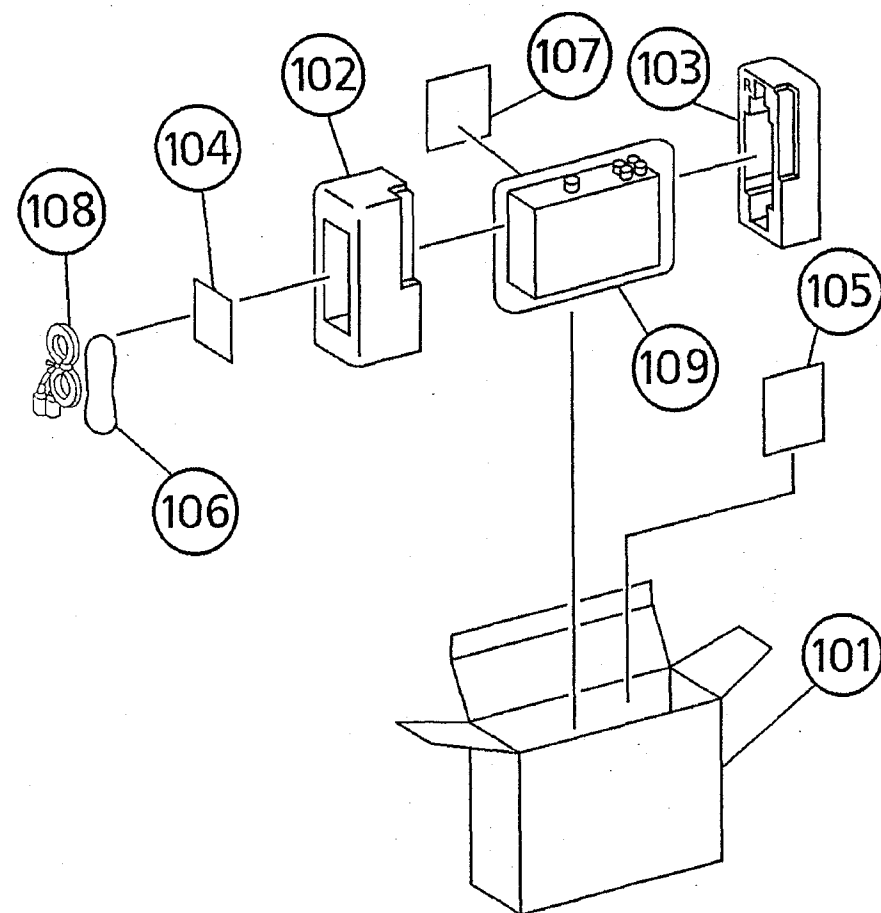
G

H

Packing Assembly Parts List

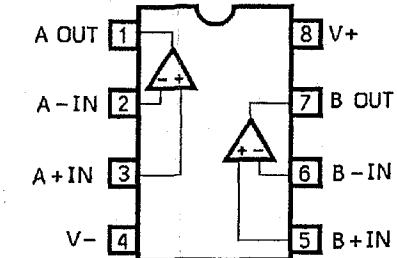
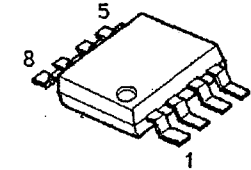
Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
101	56S41054W54	Carton, Packing (Individual)			
102	56D50081W01	Tray, Packing (L)			
103	56D50081W02	Tray, Packing (R)			
104	01V51200W06	Assy., Kit Installation			
105	68P40870W86	Owner's Manual			
106	01T94431F01	Assy., Kit Wire (3P)			
107	01T45196W01	Assy., Optical Cable			
108	01T25023W01	Assy., DIN Cable			
109	56B72811F04	Sack, Polyethylene			

Packing Method View

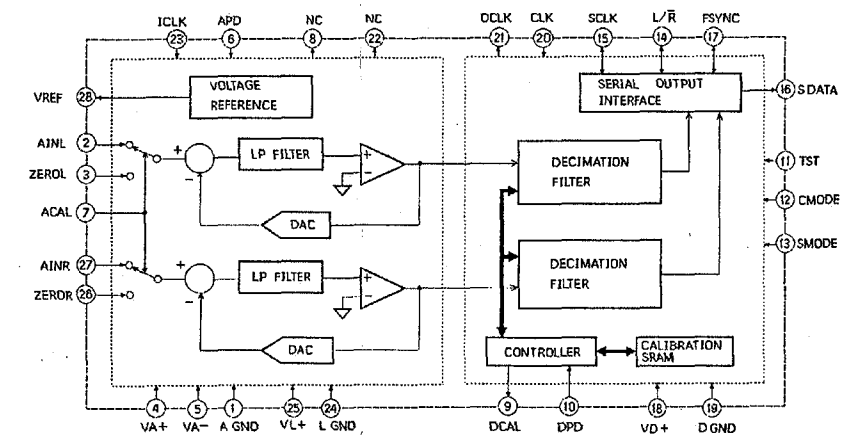
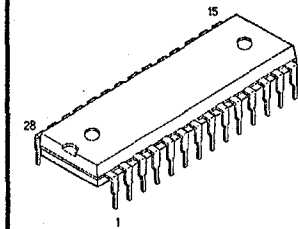


Semi - Conductor Lead Identifications

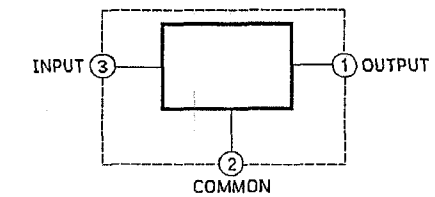
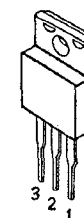
μPC4570G2 : IC101, 132, 133, 152, 153, 172,
173, 202, 232, 262, 263, 302,
332, 362, 363



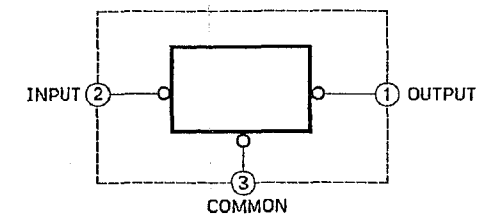
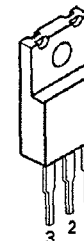
AK5339P : IC102



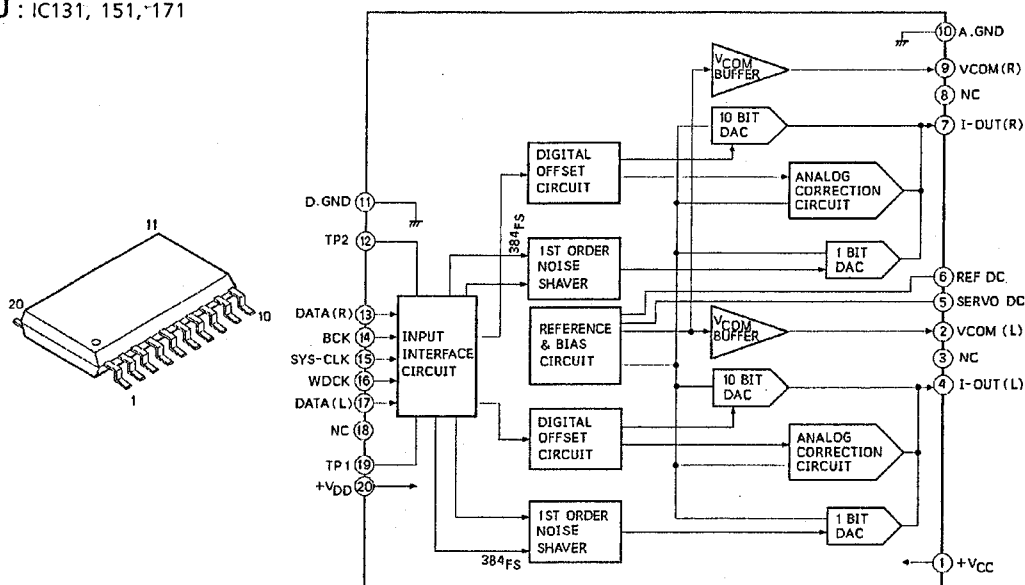
NJM7805FA : IC103, 821, 822, 904



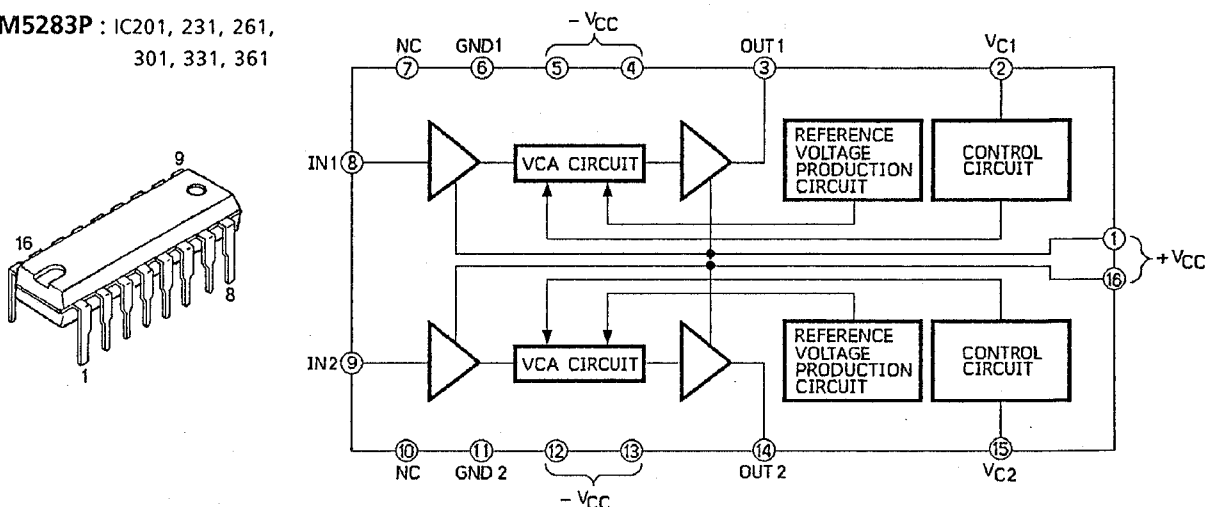
NJM7905FA : IC104



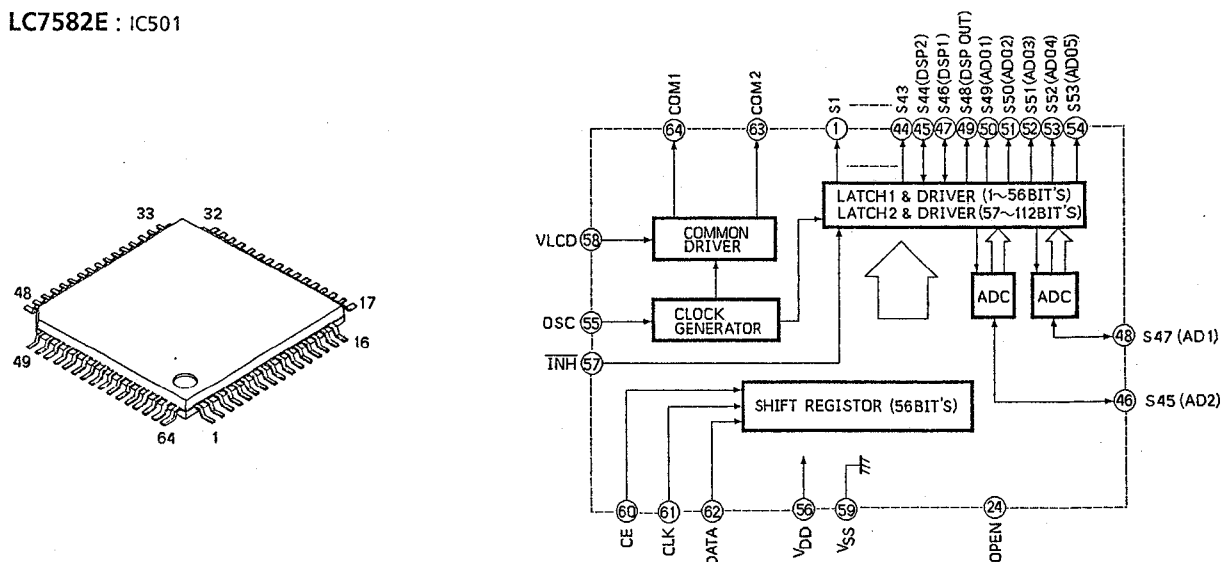
PCM67U : IC131, 151, 171



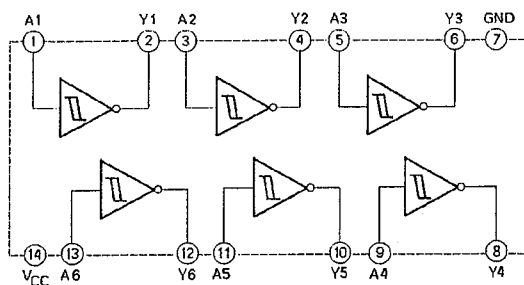
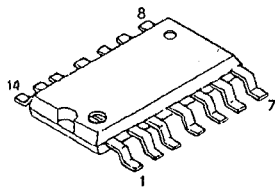
M5283P : IC201, 231, 261, 301, 331, 361



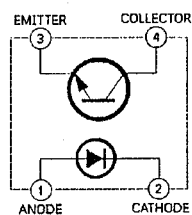
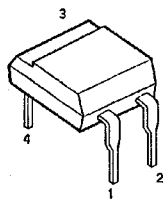
LC7582E : IC501



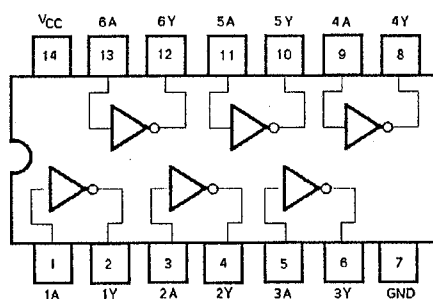
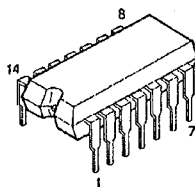
HD74HC14FP : IC551



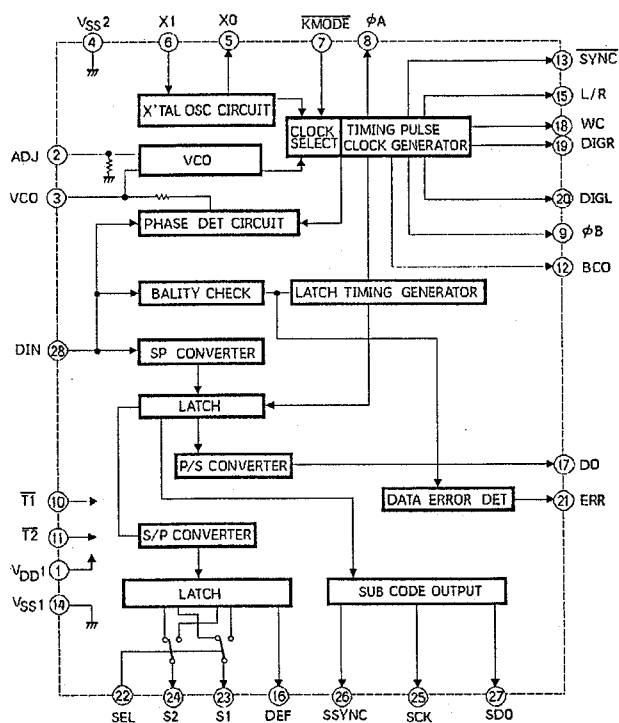
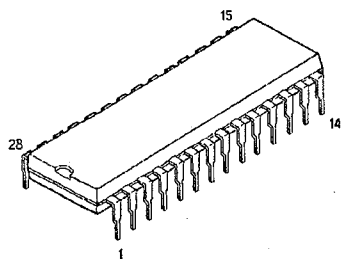
PS2501-1 : IC561, 571, 581, 752~754, 842, 906



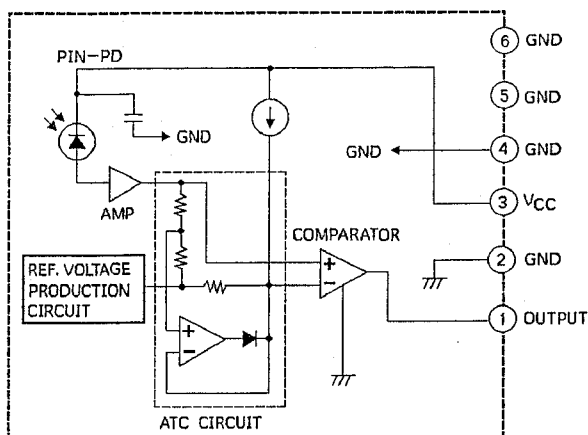
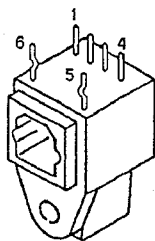
TC74HCU04AP : IC601



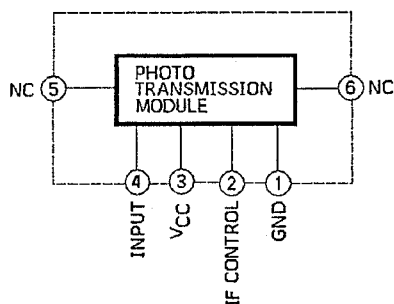
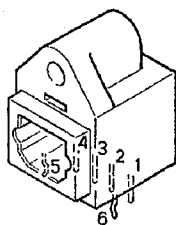
YM3623B : IC603



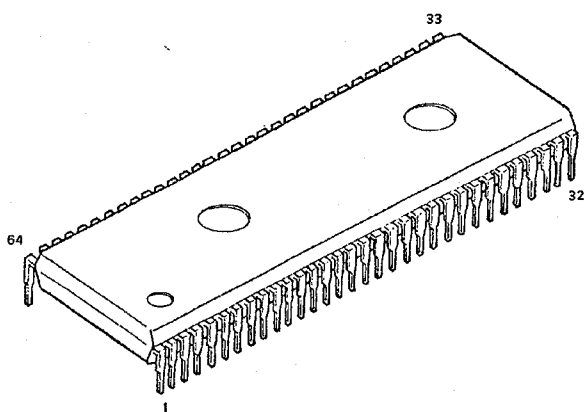
TORX193K : IC611



TOTX193K : IC612

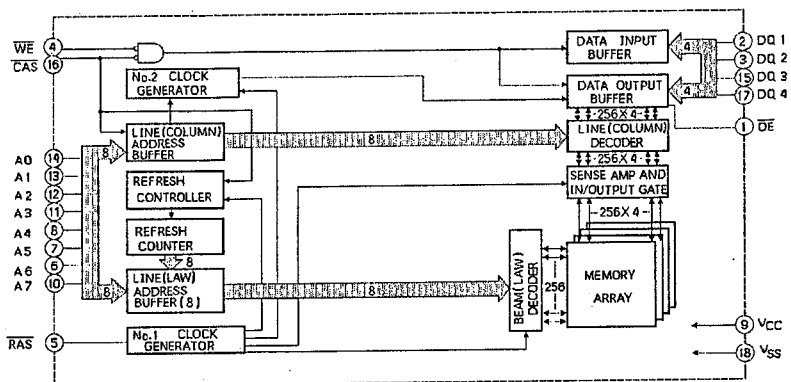
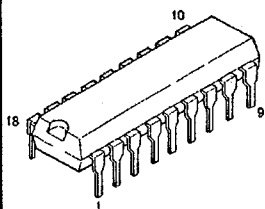


LC83010N : IC701

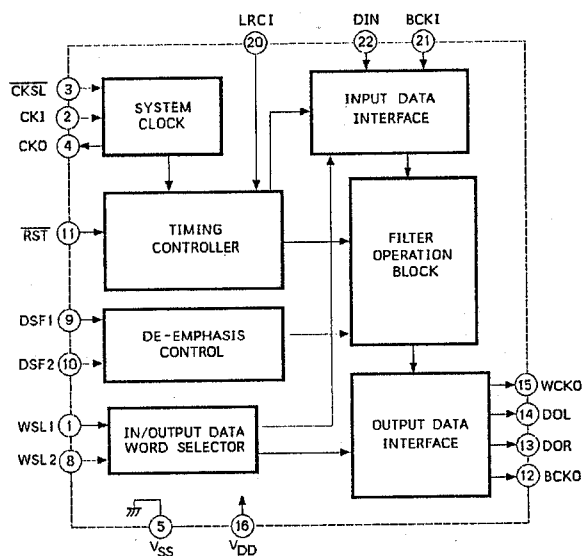
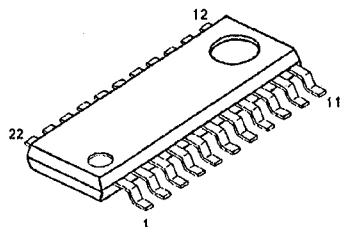


PIN NO.	CODE ADDRESS	I/O	PIN NO.	CODE ADDRESS	I/O	PIN NO.	CODE ADDRESS	I/O
1	P0	I/O	23	D3	I/O	45	VDD 2	—
2	P1	I/O	24	D4	I/O	46	RES	I
3	P2	I/O	25	D5	I/O	47	INT	I
4	P3	I/O	26	D6	I/O	48	VSS 2	—
5	P4	I/O	27	D7	I/O	49	TEST1	I
6	P5	I/O	28	A0	O	50	TEST2	I
7	AOTDF 1	O	29	A1	O	51	TEST3	I
8	AOTDF 2	O	30	A2	O	52	TEST4	I
9	DFBCK	O	31	A3	O	53	A0BCK	O
10	DFWCK	O	32	A4	O	54	ASO	O
11	RAS	O	33	A5	O	55	AOWCK	O
12	CAS	O	34	A6	O	56	SO	O
13	DREAD	O	35	A7	O	57	SOCK	I
14	DWRT	O	36	A8	O	58	SORQ	I
15	VDD 1	—	37	BCK 1	I	59	SOAK	O
16	OSC 1	—	38	BCK 2	I/O	60	SI	I
17	OSC 2	—	39	ASI 1	I	61	SICK	I
18	VSS 1	—	40	ASI 2	I	62	SIRQ	I
19	FS384G	O	41	LRCK O	O	63	STAR	O
20	D0	I/O	42	LRCK I	I	64	SRDY	I
21	D1	I/O	43	SEL	I			
22	D2	I/O	44	FS640/ T5	O			

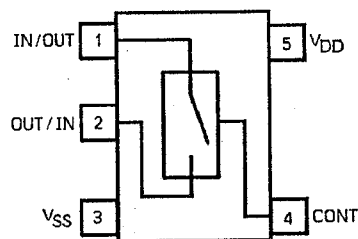
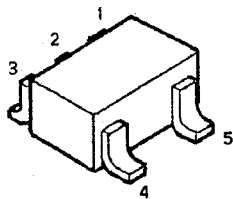
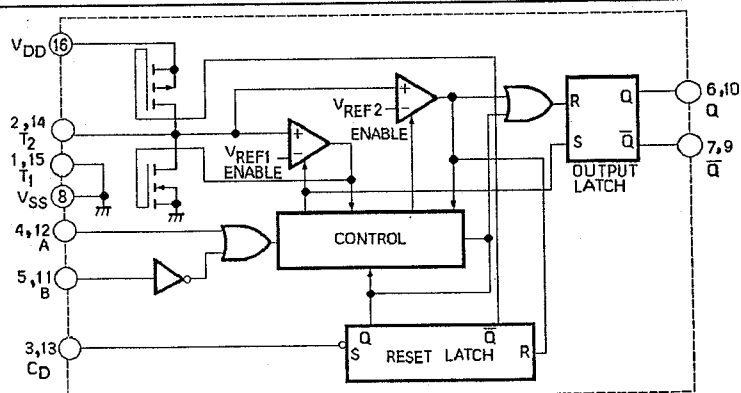
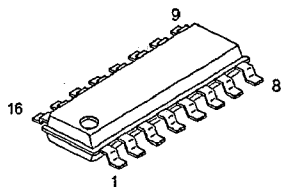
MT4067P : IC703



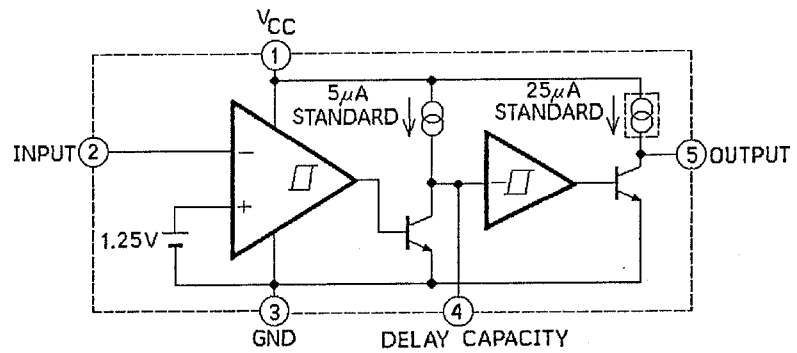
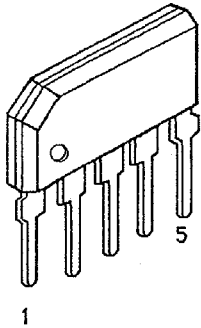
SM5840ES : IC721~723



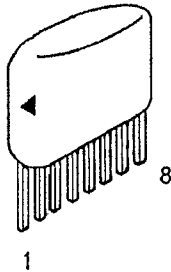
TC4S66F : IC724, 725

 μ PD4538BG : IC751

M51957A : IC755, 902

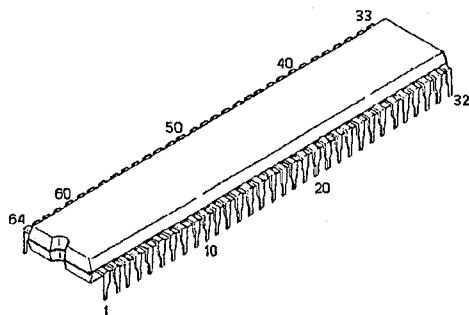


35423W01 : IC841



PIN NO.	CODE ADDRESS	I/O
1	BATT	—
2	TC1	—
3	TC2	—
4	TC3	—
5	GND	—
6	MUTE	O
7	REMOTE	I
8	NC	—

45540W06 : IC901



PIN NO.	CODE ADDRESS	I/O	PIN NO.	CODE ADDRESS	I/O	PIN NO.	CODE ADDRESS	I/O
1	NC	—	23	NC	—	45	LCD CE	O
2	A/D CALL	O	24	NC	—	46	LCD CLK	O
3	KMODE	O	25	SICK	O	47	LCD DATA	O
4	DSP P0	O	26	SI	O	48	EA	I
5	DSP P1	O	27	PULL DOWN	—	49	VDD	—
6	NC	—	28	PULL DOWN	—	50	A VSS	—
7	NC	—	29	PULL DOWN	—	51	A VREF	—
8	NC	—	30	PULL DOWN	—	52	COMAND CONT	I
9	NC	—	31	BUS OUT	O	53	FAD SW	I
10	O.F RESET	O	32	VSS	—	54	FS IN 1	I
11	ST D/A	O	33	PULL DOWN	—	55	FS IN 0	I
12	CLK D/A	O	34	STBY CONTROL	O	56	KEY IN 1	I
13	DATA D/A	O	35	NC	—	57	KEY IN 2	I
14	RESET	I	36	STBY OFF	I	58	POWER CONT	O
15	X2	—	37	STBY IN	I	59	LAMP CONT	O
16	X1	I	38	BUS IN	I	60	A-MUTE	O
17	VSS	—	39	ERROR	I	61	LED CONT	O
18	SRDY	O	40	PULL DOWN	—	62	NC	—
19	SIK	I	41	NC	—	63	NC	—
20	SIRQ	O	42	M/S SW	I	64	NC	—
21	DSP RESET	O	43	MODE SW	I			
22	NC	—	44	LCD INH	O			

MB88346B : IC903

